

# **User's Manual**

**TECRA M9**

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*TOSHIBA TECRA M9 Portable Personal Computer User's Manual*

First edition June 2007

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## Disclaimer

This manual has been validated and reviewed for accuracy. The instructions and descriptions it contains are accurate for the TOSHIBA TECRA M9 Portable Personal Computer at the time of this manual's production. However, succeeding computers and manuals are subject to change without notice. TOSHIBA assumes no liability for damages incurred directly or indirectly from errors, omissions or discrepancies between the computer and the manual.

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Intel, Intel SpeedStep, Intel Core and Centrino are trademarks or registered trademarks of Intel Corporation.

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Other trademarks and registered trademarks not listed above may be used in this manual.

## FCC information

### FCC notice "Declaration of Conformity Information"

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



*Only peripherals complying with the FCC class B limits may be attached to this equipment. Operation with non-compliant peripherals or peripherals not recommended by TOSHIBA is likely to result in interference to radio and TV reception. Shielded cables must be used between the external devices and the computer's external monitor port, Universal Serial Bus (USB 2.0) ports, i.LINK (IEEE1394) port, serial port and microphone jack. Changes or modifications made to this equipment, not expressly approved by TOSHIBA or parties authorized by TOSHIBA could void the user's authority to operate the equipment.*

### FCC conditions

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

### Contact

**Address:** TOSHIBA America Information Systems, Inc.  
9740 Irvine Boulevard  
Irvine, California 92618-1697

**Telephone:** (949) 583-3000

## EU Declaration of Conformity



TOSHIBA declares, that this product conforms to the following Standards:

Supplementary  
Information:

“The product complies with the requirements of the Low Voltage Directive 73/23/EEC, the EMC Directive 89/336/EEC and/or the R&TTE Directive 1999/5/EC.”

This product is carrying the CE-Mark in accordance with the related European Directives. The party responsible for CE-Marking is TOSHIBA Europe GmbH, Hammfelddamm 8, 41460 Neuss, Germany.

## VCCI Class B Information

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

## Modem warning notice

### Conformity Statement

The equipment has been approved to [Commission Decision "CTR21"] for pan-European single terminal connection to the Public Switched Telephone Network (PSTN).

However, due to differences between the individual PSTNs provided in different countries/regions the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

In the event of problems, you should contact your equipment supplier in the first instance.



## Network Compatibility Statement

This product is designed to work with, and is compatible with the following networks. It has been tested to and found to conform with the additional requirements conditional in EG 201 121.

Germany	ATAAB AN005,AN006,AN007,AN009,AN010 and DE03,04,05,08,09,12,14,17
Greece	ATAAB AN005,AN006 and GR01,02,03,04
Portugal	ATAAB AN001,005,006,007,011 and P03,04,08,10
Spain	ATAAB AN005,007,012, and ES01
Switzerland	ATAAB AN002
All other countries/regions	ATAAB AN003,004

Specific switch settings or software setup are required for each network, please refer to the relevant sections of the user guide for more details.

The hookflash (timed break register recall) function is subject to separate national type approvals. It has not been tested for conformity to national type regulations, and no guarantee of successful operation of that specific function on specific national networks can be given.

## Japan regulations

### Region selection

If you are using the computer in Japan, technical regulations described in the Telecommunications Business Law require that you select the Japan region mode. It is illegal to use the modem in Japan with any other selection.

### Redial

Up to two redial attempts can be made. If more than two redial attempts are made, the modem will return **Black Listed**. If you are experiencing problems with the Black Listed code, set the interval between redials at one minute or longer.

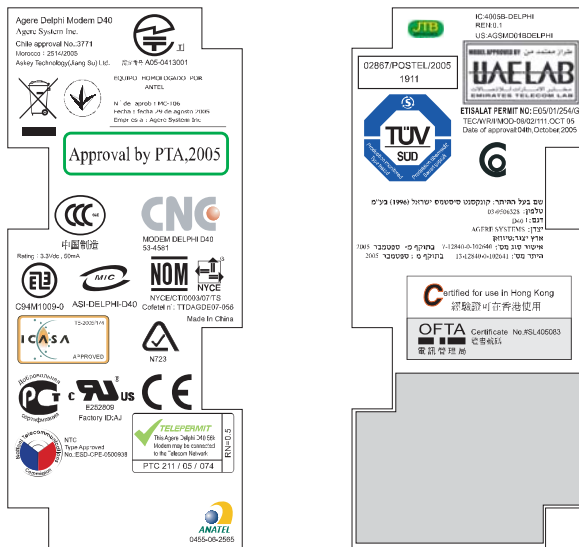
Japan's Telecommunications Business Law permits up to two redials on analogue telephones, but the redials must be made within a total of three minutes.

The internal modem is approved by Japan Approvals Institute for Telecommunications Equipment.



認定番号 A05-0413001

This label is located on the module.



## Pursuant to FCC CFR 47, Part 68:

When you are ready to install or use the modem, call your local telephone company and give them the following information:

- The telephone number of the line to which you will connect the modem
- The registration number that is located on the device

The FCC registration number of the modem will be found on either the device which is to be installed, or, if already installed, on the bottom of the computer outside of the main system label.

- The Ringer Equivalence Number (REN) of the modem, which can vary. For the REN of your modem, refer to your modem's label.

The modem connects to the telephone line by means of a standard jack called the USOC RJ11C.

## Type of service

Your modem is designed to be used on standard-device telephone lines. Connection to telephone company-provided coin service (central office implemented systems) is prohibited. Connection to party lines service is subject to state tariffs. If you have any questions about your telephone line, such as how many pieces of equipment you can connect to it, the telephone company will provide this information upon request.

## Telephone company procedures

The goal of the telephone company is to provide you with the best service it can. In order to do this, it may occasionally be necessary for them to make changes in their equipment, operations, or procedures. If these changes might affect your service or the operation of your equipment, the telephone company will give you notice in writing to allow you to make any changes necessary to maintain uninterrupted service.

## If problems arise

If any of your telephone equipment is not operating properly, you should immediately remove it from your telephone line, as it may cause harm to the telephone network. If the telephone company notes a problem, they may temporarily discontinue service. When practical, they will notify you in advance of this disconnection. If advance notice is not feasible, you will be notified as soon as possible. When you are notified, you will be given the opportunity to correct the problem and informed of your right to file a complaint with the FCC. In the event repairs are ever needed on your modem, they should be performed by TOSHIBA Corporation or an authorized representative of TOSHIBA Corporation.

## Disconnection

If you should ever decide to permanently disconnect your modem from its present line, please call the telephone company and let them know of this change.

## Fax branding

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business, other entity or individual sending the message and the telephone number of the sending machine or such business, other entity or individual. In order to program this information into your fax modem, you should complete the setup of your fax software before sending messages.

## Instructions for IC CS-03 certified equipment

1. The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection.

The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe systems, if present, are connected together. This precaution may be particularly important in rural areas.



*Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.*

2. The user manual of analog equipment must contain the equipment's Ringer Equivalence Number (REN) and an explanation notice similar to the following:

The Ringer Equivalence Number (REN) of the modem, which can vary. For the REN of your modem, refer to your modem's label.



*The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.*

3. The standard connecting arrangement (telephone jack type) for this equipment is jack type(s): USOC RJ11C.  
The IC registration number of the modem is shown below.

Canada: 4005B-DELPHI

## Notes for Users in Australia and New Zealand

### Modem warning notice for Australia

Modems connected to the Australian telecoms network must have a valid Austel permit. This modem has been designed to specifically configure to ensure compliance with Austel standards when the country/region selection is set to Australia. The use of other country/region setting while the modem is attached to the Australian PSTN would result in you modem being operated in a non-compliant manner. To verify that the country/region is correctly set, enter the command AT1 which displays the currently active setting.

To set the country/region permanently to Australia, enter the following command sequence:

```
AT%TE=1
ATS133=1
AT&F
AT&W
AT%TE=0
ATZ
```

Failure to set the modem to the Australia country/region setting as shown above will result in the modem being operated in a non-compliant manner. Consequently, there would be no permit in force for this equipment and the Telecoms Act 1991 prescribes a penalty of \$12,000 for the connection of non-permitted equipment.

### Notes for use of this device in New Zealand

- The grant of a Telepermit for a device in no way indicates Telecom acceptance of responsibility for the correct operation of that device under all operating conditions. In particular the higher speeds at which this modem is capable of operating depend on a specific network implementation which is only one of many ways of delivering high quality voice telephony to customers. Failure to operate should not be reported as a fault to Telecom.
- In addition to satisfactory line conditions a modem can only work properly if:
  - a/ it is compatible with the modem at the other end of the call and.
  - b/ the application using the modem is compatible with the application at the other end of the call - e.g., accessing the Internet requires suitable software in addition to a modem.
- This equipment shall not be used in any manner which could constitute a nuisance to other Telecom customers.

- Some parameters required for compliance with Telecom's PTC Specifications are dependent on the equipment (PC) associated with this modem. The associated equipment shall be set to operate within the following limits for compliance with Telecom Specifications:
  - a/ There shall be no more than 10 call attempts to the same number within any 30 minute period for any single manual call initiation, and
  - b/ The equipment shall go on-hook for a period of not less than 30 seconds between the end of one attempt and the beginning of the next.
  - c/ Automatic calls to different numbers shall be not less than 5 seconds apart.
- Immediately disconnect this equipment should it become physically damaged, and arrange for its disposal or repair.
- The correct settings for use with this modem in New Zealand are as follows:
  - ATB0 (CCITT operation)
  - AT&G2 (1800 Hz guard tone)
  - AT&P1 (Decadic dialing make-break ratio =33%/67%)
  - ATS0=0 (not auto answer)
  - ATS6=4 (Blind dial delay)
  - ATS7=less than 90 (Time to wait to carrier after dialing)
  - ATS10=less than 150 (loss of carrier to hangup delay, factory default of 15 recommended)
  - ATS11=90 (DTMF dialing on/off duration=90 ms)
  - ATX2 (Dial tone detect, but not (U.S.A.) call progress detect)
- When used in the Auto Answer mode, the S0 register must be set with a value of 3 or 4. This ensures:
  - a person calling your modem will hear a short burst of ringing before the modem answers. This confirms that the call has been successfully switched through the network.
  - caller identification information (which occurs between the first and second ring cadences) is not destroyed.
- The preferred method of dialing is to use DTMF tones (ATDT...) as this is faster and more reliable than pulse (decadic) dialing. If for some reason you must use decadic dialing, your communications program must be set up to record numbers using the following translation table as this modem does not implement the New Zealand "Reverse Dialing" standard.
  - Number to be dialed: 0 1 2 3 4 5 6 7 8 9
  - Number to program into computer: 0 9 8 7 6 5 4 3 2 1
  - Note that where DTMF dialing is used, the numbers should be entered normally.

- The transmit level from this device is set at a fixed level and because of this there may be circumstances where the performance is less than optimal. Before reporting such occurrences as faults, please check the line with a standard Telepermitted telephone, and only report a fault if the phone performance is impaired.
- It is recommended that this equipment be disconnected from the Telecom line during electrical storms.
- When relocating the equipment, always disconnect the Telecom line connection before the power connection, and reconnect the power first.
- This equipment may not be compatible with Telecom Distinctive Alert cadences and services such as FaxAbility.

**NOTE THAT FAULT CALLOUTS CAUSED BY ANY OF THE ABOVE CAUSES MAY INCUR A CHARGE FROM TELECOM**

## General conditions

As required by PTC 100, please ensure that this office is advised of any changes to the specifications of these products which might affect compliance with the relevant PTC Specifications.

The grant of this Telepermit is specific to the above products with the marketing description as stated on the Telepermit label artwork. The Telepermit may not be assigned to other parties or other products without Telecom approval.

A Telepermit artwork for each device is included from which you may prepare any number of Telepermit labels subject to the general instructions on format, size and color on the attached sheet.

The Telepermit label must be displayed on the product at all times as proof to purchasers and service personnel that the product is able to be legitimately connected to the Telecom network.

The Telepermit label may also be shown on the packaging of the product and in the sales literature, as required in PTC 100.

The charge for a Telepermit assessment is \$337.50. An additional charge of \$337.50 is payable where an assessment is based on reports against non-Telecom New Zealand Specifications. \$112.50 is charged for each variation when submitted at the same time as the original.

An invoice for \$NZ1237.50 will be sent under separate cover.

## Following information is only for EU-member states:



The use of the symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.



*This symbol may not stick depending on the country and region where you purchased.*

## Description on Laser specification

The optical disc drive such as DVD Super Multi drive that is used in this computer is equipped with laser. The classification label with the following sentence is affixed to the surface of the drive.

CLASS 1 LASER PRODUCT

LASER KLASSE 1

LUOKAN 1 LASERLAITE

APPAREIL A LASER DE CLASSE 1

KLASS 1 LASER APPARAT

The drive with the above label is certified by the manufacturer that the drive complies with the requirement for laser product on the date of manufacturing pursuant to article 21 of Code of Federal Regulations by the United States of America, Department of Health & Human Services, Food and Drug Administration.

In other countries, the drive is certified to comply with the requirement pursuant to IEC 60825-1 and EN 60825-1 on class 1 laser product.

This computer is equipped with the optical disc drive in the following list according to the model.

Manufacturer	Type
Panasonic	UJ-852



## Preface

Congratulations on your purchase of the TECRA M9 series computer. This powerful notebook computer provides excellent expansion capability, includes multimedia functionality, and is designed to provide years of reliable, high-performance computing.

This manual tells how to set up and begin using your TECRA M9 computer. It also provides detailed information on configuring your computer, basic operations and care, using optional devices and troubleshooting.

If you are a new user of computers or if you're new to portable computing, first read over the Chapter 1, *Getting Started* and Chapter 3, *Hardware, Utilities and Options* chapters to familiarize yourself with the computer's features, components and accessory devices. Then read Chapter 1, *Getting Started* for step-by-step instructions on setting up your computer.

If you are an experienced computer user, please continue reading the preface to learn how this manual is organized, then become acquainted with this manual by browsing through its pages. Be sure to read the *Special features* section in Chapter 3, *Hardware, Utilities and Options* to learn about features that are uncommon or unique to this computer, as well as the section on Chapter 7, *HW Setup & BIOS Setup*, to understand how to setup and configure these features.

Read Chapter 3, *Hardware, Utilities and Options* if connecting optional products or external devices.

## Conventions

This manual uses the following formats to describe, identify, and highlight terms and operating procedures.

### Abbreviations

On first appearance, and whenever necessary for clarity, abbreviations are enclosed in parentheses following their definition. For example: Read Only Memory (ROM). Acronyms are also defined in the Glossary.

## Icons

Icons identify ports, dials, and other parts of your computer. The indicator panel also uses icons to identify the components it is providing information on.

## Keys

The keyboard keys are used in the text to describe many computer operations. A distinctive typeface identifies the key top symbols as they appear on the keyboard. For example, **ENTER** identifies the Enter key.

## Key operation

Some operations require you to simultaneously use two or more keys. We identify such operations by the key top symbols separated by a plus sign (+). For example, **CTRL + C** means you must hold down **CTRL** and at the same time press **C**. If three keys are used, hold down the first two and at the same time press the third.

**ABC**

When procedures require an action such as clicking an icon or entering text, the icon's name or the text you are to type in is represented in the typeface you see to the left.

## Display



**ABC**

Names of windows or icons or text generated by the computer that appear on its display screen are presented in the type face you see to the left.

## Messages

Messages are used in this manual to bring important information to your attention. Each type of message is identified as shown below.



*Pay attention! A caution informs you that improper use of equipment or failure to follow instructions may cause data loss or damage your equipment.*



*Please read. A note is a hint or advice that helps you make best use of your equipment.*




*Indicates a potentially hazardous situation, which could result in death or serious injury, if you do not follow instructions.*

## Terminology

This term is defined in this document as follows:

**Start**

The word "**Start**" refers to the "  " button in Microsoft® Windows Vista™.

## General Precautions

TOSHIBA computers are designed to optimize safety, minimize strain and withstand the rigors of portability. However, certain precautions should be observed to further reduce the risk of personal injury or damage to the computer.

Be certain to read the general precautions below and to note the cautions included in the text of the manual.

### Creating a computer-friendly environment

Place the computer on a flat surface that is large enough for the computer and any other items you are using, such as a printer.

Leave enough space around the computer and other equipment to provide adequate ventilation. Otherwise, they may overheat.

To keep your computer in prime operating condition, protect your work area from:

- Dust, moisture, and direct sunlight.
- Equipment that generates a strong electromagnetic field, such as stereo speakers (other than speakers that are connected to the computer) or speakerphones.
- Rapid changes in temperature or humidity and sources of temperature change such as air conditioner vents or heaters.
- Extreme heat, cold, or humidity.
- Liquids and corrosive chemicals.

### Stress injury

Carefully read the *Instruction Manual for Safety and Comfort*. It contains information on the prevention of stress injuries to your hands and wrists that can be caused by extensive keyboard use. *Instruction Manual for Safety and Comfort* also includes information on work space design, posture and lighting that can help reduce physical stress.

## Heat injury

- Avoid prolonged physical contact with the computer. If the computer is used for long periods, its surface can become very warm. While the temperature will not feel hot to the touch, if you maintain physical contact with the computer for a long time, for example if you rest the computer on your lap or if you keep your hands on the palm rest, your skin might suffer a low-heat injury.
- If the computer has been used for a long time, avoid direct contact with the metal plate supporting the various interface ports as this can become hot.
- The surface of the AC adaptor can become hot when in use but this condition does not indicate a malfunction. If you need to transport the AC adaptor, you should disconnect it and let it cool before moving it.
- Do not lay the AC adaptor on a material that is sensitive to heat as the material could become damaged.

## Pressure or impact damage

Do not apply heavy pressure to the computer or subject it to any form of strong impact as this can damage the computer's components or otherwise cause it to malfunction.

## PC Card overheating

Some PC Cards can become hot during prolonged use which may result in errors or instability in the operation of the device in question. In addition, you should also be careful when you remove a PC Card that has been used for a long time.

## Mobile phones

Please be aware that the use of mobile phones can interfere with the audio system. The operation of the computer will not be impaired in any way, but it is recommended that a minimum distance of 30cm is maintained between the computer and a mobile phone that is in use.

## Instruction Manual for Safety and Comfort

All important information on the safe and proper use of this computer is described in the enclosed Instruction Manual for Safety and Comfort. Be sure to read it before using the computer.

## Chapter 1

### Getting Started

This chapter provides an equipment checklist, and basic information to start using your computer.



*Some of the features described in this manual may not function properly if you use an operating system that was not pre-installed by TOSHIBA.*

### Equipment checklist

Carefully unpack your computer, taking care to save the box and packaging materials for future use.

#### Hardware

Check to make sure you have all the following items:

- TECRA M9 Portable Personal Computer
- AC adaptor and power cord (2-pin plug or 3-pin plug)
- Battery pack (Is pre-installed in some computer)
- Extended Capacity Battery Pack (Is included with some models)
- High Capacity Battery Pack (Is included with some models)
- Spare AccuPoint (pointing device) cap

#### Documentation

- TECRA M9 Series User Information Guide
- Instruction Manual for Safety and Comfort
- End User License Agreement

If any of the items are missing or damaged, contact your dealer immediately.

## Software

The following Windows® operating system and utility software are pre-installed.

- Microsoft® Windows Vista™
- TOSHIBA Value Added Package
- Recovery Disc Creator
- DVD Video Player
- TOSHIBA SD Memory Utilities
- TOSHIBA SD Memory Boot Utility
- CD/DVD Drive Acoustic Silencer
- TOSHIBA Assist
- TOSHIBA ConfigFree
- TOSHIBA HDD Protection
- TOSHIBA Disc Creator
- Fingerprint Utility
- Windows Mobility Center
- Online Manual
  - TECRA M9 User's Manual (This manual)
- Discs
  - Windows Anytime Upgrade DVD (Is included with some models)

## Getting Started



- All users should be sure to read the section [Starting up for the first time](#).
- Be sure to read the enclosed *Instruction Manual for Safety and Comfort* for information on the safe and proper use of this computer. It is intended to help you be more comfortable and productive while using a notebook computer. By following the recommendations in it you may reduce your chance of developing a painful or disabling injury to your hand, arms, shoulders or neck.

This section provides basic information to start using your computer. It covers the following topics:

- Connecting the AC adaptor
- Opening the display
- Turning on the power
- Starting up for the first time
- Turning off the power
- Restarting the computer
- Creating Optical Recovery Discs
- Restoring the pre-installed software from the Recovery hard disk drive
- Restoring the pre-installed software from your created Recovery Discs



- Use a virus-check program and make sure it is updated regularly.
- Never format storage media without checking its content - formatting destroys all stored data.
- It is a good idea to periodically back up the internal hard disk drive or other main storage device to external media. General storage media is not durable or stable over long periods of time and under certain conditions may result in data loss.
- Before you install a device or application, save any data in memory to the hard disk drive or other storage media. Failure to do so may result in the loss of data.



## Connecting the AC adaptor

Attach the AC adaptor when you need to charge the battery or you want to operate from AC power. It is also the fastest way to get started, because the battery pack will need to be charged before you can operate from battery power.

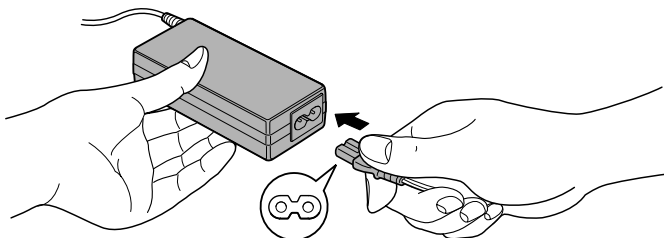
The AC adaptor can be connected to any power source supplying from 100 to 240 volts and 50 or 60 hertz. For details on using the AC adaptor to charge the battery pack, refer to Chapter 6, [Power and Power-Up Modes](#).



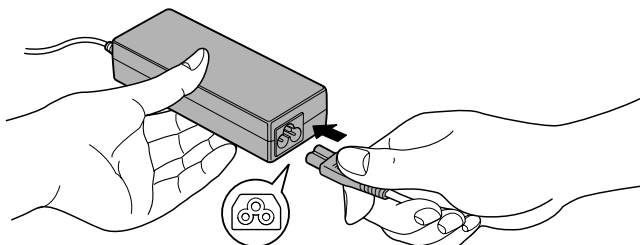
- *Always use the TOSHIBA AC adaptor that was included with your computer, or use AC adaptors specified by TOSHIBA to avoid any risk of fire or other damage to the computer. Use of an incompatible AC adaptor could cause fire or damage to the computer possibly resulting in serious injury. TOSHIBA assumes no liability for any damage caused by use of an incompatible adaptor.*
- *Never plug the AC adaptor into a power source that does not correspond to both the voltage and the frequency specified on the regulatory label of the unit. Failure to do so could result in a fire or electric shock, possibly resulting in serious injury.*
- *Always use or purchase power cables that comply with the legal voltage and frequency specifications and requirements in the country of use. Failure to do so could result in a fire or electric shock, possibly resulting in serious injury.*
- *The supplied power cord conforms to safety rules and regulations in the region the product is bought and should not be used outside this region. For use in other regions, please buy power cords that conform to safety rules and regulations in the particular region.*
- *Do not use a 3-pin to 2-pin conversion plug.*
- *When you connect the AC adaptor to the computer, always follow the steps in the exact order as described in the User's Manual. Connecting the power cable to a live electrical outlet should be the last step otherwise the adaptor DC output plug could hold an electrical charge and cause an electrical shock or minor bodily injury when touched. As a general safety precaution, avoid touching any metal parts.*
- *Never place your computer or AC adaptor on a wooden surface, furniture, or any other surface that could be marred by exposure to heat since the computer base and AC adaptor's surface increase in temperature during normal use.*
- *Always place your computer or AC adaptor on a flat and hard surface that is resistant to heat damage.*

*Refer to the enclosed Instruction Manual for Safety and Comfort for detailed precautions and handling instructions.*

1. Connect the power cord to the AC adaptor.



*Figure 1-1 Connecting the power cord to the AC adaptor (2-pin plug)*

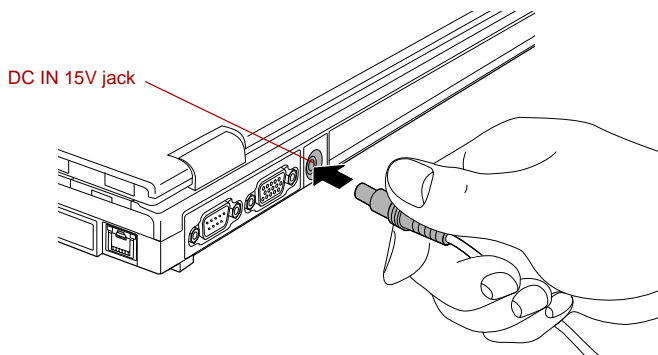


*Figure 1-2 Connecting the power cord to the AC adaptor (3-pin plug)*



*Either a 2-pin or 3-pin adaptor/cord will be included with the computer depending on the model.*

2. Connect the AC adaptor's DC output plug to the DC IN 15V jack on the back of the computer.



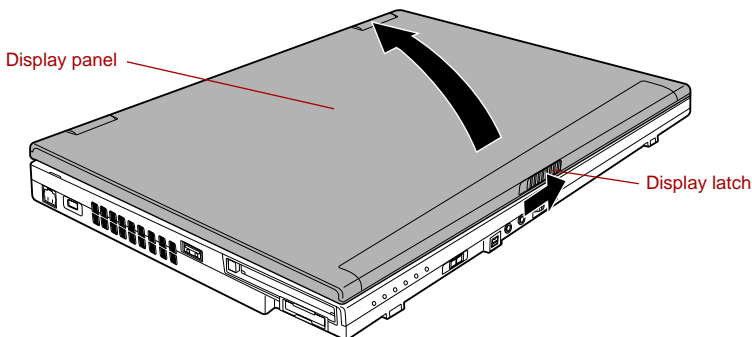
*Figure 1-3 Connecting the adaptor to the computer*

3. Plug the power cord into a live wall outlet - the **Battery** and **DC IN** indicators on the front of the computer should glow.

## Opening the display

The display panel can be opened to a wide range of angles for optimal viewing.

1. Slide the display latch on the front of the computer to unlatch the display panel.
2. While holding down the palm rest with one hand so that the main body of the computer is not raised, slowly lift the display panel - this will allow the angle of the display panel to be adjusted to provide optimum clarity.



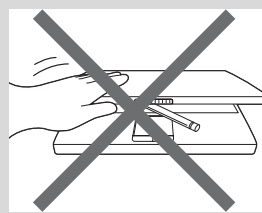
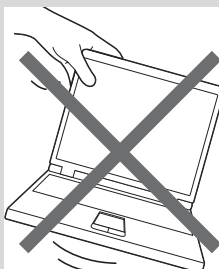
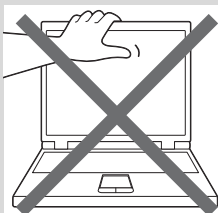
*Figure 1-4 Opening the display panel*



*Use reasonable care when opening and closing the display panel. Opening it vigorously or slamming it shut could damage the computer.*



- *Be careful not to open the display panel too far as this could put stress on the display panel's hinges and cause damage.*
- *Do not press or push on the display panel.*
- *Do not lift the computer by the display panel.*
- *Do not close the display panel with pens or any other objects left in between the display panel and the keyboard.*
- *When opening or closing the display panel, place one hand on the palm rest to hold the computer in place and use the other hand to slowly open or close the display panel (Do not use excessive force when opening or closing the display panel).*



## Turning on the power

This section describes how to turn on the power - the **Power** indicator will then indicate the status. Please refer to the [Monitoring of power condition](#) section in Chapter 6, Power and Power-Up Modes for more information.



- After you turn on the power for the first time, do not turn it off until you have set up the operating system. Please refer to the section [Starting up for the first time](#) for more information.
- Volume cannot be adjusted during Windows Setup.

1. Open the display panel.
2. Press and hold the computer's power button for two or three seconds.

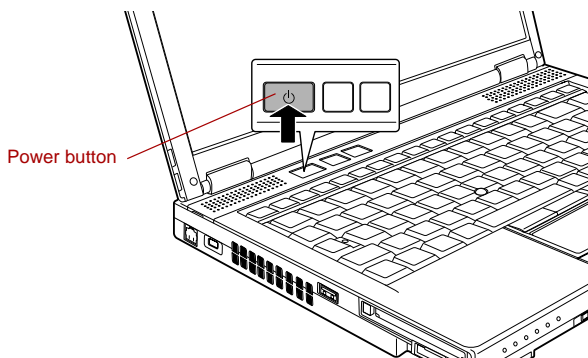


Figure 1-5 Turning on the power

## Starting up for the first time

The Microsoft Windows Vista™ Startup Screen will be the first screen displayed when you turn on the power. Follow the on-screen instructions on each screen in order to properly install the operating system.



*When it is displayed, be sure to read the **Software License Terms** carefully.*

## Turning off the power

The power can be turned off in one of three modes, either Shut Down (Boot) Mode, Hibernation Mode or Sleep Mode.

### Shut Down mode (Boot Mode)



When you turn off the power in Shut Down Mode no data will be saved and the computer will boot to the operating system's main screen the next time it is turned on.

1. If you have entered data, either save it to the hard disk drive or to other storage media.
2. Make sure all disk/disc activity has stopped before removing the CD/DVD or floppy diskette.



- *Make sure the **Hard Disk Drive** and **Ultra Slim Bay's module** indicators are off. If you turn off the power while a disk (disc) is being accessed, you may lose data or damage the disk.*
- *Never turn off the power while an application is running. Doing so could cause loss of data.*
- *Never turn off the power, disconnect an external storage device or remove storage media during data read/write. Doing so can cause data loss.*

3. Click **Start**.

4. Click the arrow button (  ) located in the power management buttons (  ) and select **Shut Down** from the menu.

5. Turn off any peripheral devices connected to your computer.



*Do not turn the computer or peripheral devices back on immediately - wait a short period to avoid any potential damage.*

## Sleep Mode

If you have to interrupt your work, you are able to turn off the power without exiting from your software by placing the computer into Sleep Mode. In this mode data is maintained in the computer's main memory so that when you turn on the power again, you can continue working right where you left off.



*Turning Off Your Computer where Electronic Devices are Regulated or Controlled.*

*When you have to turn off your computer aboard an aircraft or in places where electronic devices are regulated or controlled, always shut down the computer completely or put the computer into Hibernation Mode instead of allowing it to go into Sleep Mode, and turn off any wireless communication switches or devices, while in Sleep Mode, the computer operating system may reactivate itself to run pre-programmed tasks or to preserve unsaved data, and might interfere with aviation or other systems, possibly causing serious injury.*



- *Before entering Sleep Mode, be sure to save your data.*
- *Do not install or remove a memory module while the computer is in Sleep Mode. The computer or the memory module could be damaged.*
- *Do not remove the battery pack while the computer is in Sleep Mode (unless the computer is connected to an AC power source). Data in memory could be lost.*



- When the AC adaptor is connected, the computer will go into Sleep Mode according to the settings in the Power Options (to access it, **Start -> Control Panel -> System and Maintenance -> Power Options**).
- To restore the operation of the computer from Sleep Mode, press and hold the power button or any key on the keyboard for a short amount of time. Please note that keyboard keys can only be used if the Wake-up on Keyboard option is enabled within the HW Setup utility.
- If the computer enters Sleep Mode while a network application is active, the application might not be restored when the computer is next turned on and the system returns from Sleep Mode.
- To prevent the computer from automatically entering Sleep Mode, disable Sleep Mode within the Power Options (to access it, **Start -> Control Panel -> System and Maintenance -> Power Options**).
- To use the Hybrid Sleep function, configure it in the Power Options.

### Benefits of Sleep Mode

The Sleep Mode feature provides the following benefits:


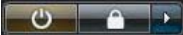

- Restores the previous working environment more rapidly than does the Hibernation Mode feature.
- Saves power by shutting down the system when the computer receives no input or hardware access for the time period set by the System Sleep Mode feature.
- Allows the use of the panel power off feature.

### Executing Sleep Mode



You can also enable Sleep Mode by pressing **FN + F3** - please refer to Chapter 5, [The Keyboard](#), for further details.

You can enter Sleep Mode in one of four ways:

- Click **Start** then click the power button (  ) located in the power management buttons (  ).  
Please note that this feature must be enabled within the Power Options (to access it, click **Start -> Control Panel -> System and Maintenance -> Power Options**).
- Click **Start** then click the arrow button (  ) and select **sleep** from the menu.
- Close the display panel. Please note that this feature must be enabled within the Power Options (to access it, click **Start -> Control Panel -> System and Maintenance -> Power Options**).
- Press the power button. Please note that this feature must be enabled within the Power Options (to access it, click **Start -> Control Panel -> System and Maintenance -> Power Options**).

When you turn the power back on, you can continue where you left when you shut down the computer.



- When the computer is in Sleep Mode, the power indicator will blink orange.
- If you are operating the computer on battery power, you can lengthen the overall operating time by turning it off into Hibernation Mode - Sleep Mode will consume more power while the computer is off.

### *Sleep Mode limitations*

Sleep Mode will not function under the following conditions:

- Power is turned back on immediately after shutting down.
- Memory circuits are exposed to static electricity or electrical noise.

### *Hibernation Mode*

The Hibernation Mode feature saves the contents of memory to the hard disk drive when the computer is turned off so that, the next time it is turned on, the previous state is restored. Please note that the Hibernation Mode feature does not save the status of any peripheral devices connected to the computer.



- Save your data. While entering Hibernation Mode, the computer saves the contents of memory to the hard disk drive. However, for safety sake, it is best to save your data manually.
- Data will be lost if you remove the battery or disconnect the AC adaptor before the save is completed. Wait for the **Hard Disk Drive** indicator to go out.
- Do not install or remove a memory module while the computer is in Hibernation Mode. Data will be lost.

### *Benefits of Hibernation Mode*

The Hibernation Mode feature provides the following benefits:


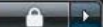
- Saves data to the hard disk drive when the computer automatically shuts down because of a low battery condition.
- You can return to your previous working environment immediately when you turn on the computer.
- Saves power by shutting down the system when the computer receives no input or hardware access for the time period set by the System Hibernate feature.
- Allows the use of the panel power off feature.

### *Starting Hibernation Mode*



You can also enable Hibernation Mode by pressing **FN + F4** - please refer to Chapter 5, [The Keyboard](#), for further details.

To enter Hibernation Mode, follow the steps below.

1. Click **Start**.
2. Click the arrow button (  ) in the power management buttons (  ) and select **Hibernate** from the menu.

### Automatic Hibernation Mode

The computer can be configured to enter Hibernation Mode automatically when you press the power button or close the lid. In order to define these settings, you can follow the steps as described below:

1. Click **Start** and click the **Control Panel**.
2. Click **System and Maintenance** and click **Power Options**.
3. Click **Choose what the power button does** or **Choose what closing the lid does**.
4. Enable the desired Hibernation Mode settings for **When I press the power button** and **When I close the lid**.
5. Click the **Save changes** button.

### Data save in Hibernation Mode

When you turn off the power in Hibernation Mode, the computer will take a moment to save the current data in memory to the hard disk drive. During this time, the **Hard Disk Drive** indicator will glow.

After you turn off the computer, and the content of memory has been saved to the hard disk drive, turn off the power to any peripheral devices.





*Do not turn the computer or devices back on immediately. Wait a moment to let all capacitors fully discharge.*

## Restarting the computer

Certain conditions require that you reset the computer, for example if:

- You change certain computer settings.
- An error occurs and the computer does not respond to your keyboard commands.

If you need to restart the computer, there are three ways this can be achieved:

- Click **Start** then click the arrow button (  ) in the power management buttons (  ) and select **Restart** from the menu.
- Press **CTRL**, **ALT** and **DEL** simultaneously (once) to display the menu window, then select **Restart** from the **Shut down options**.
- Press the power button and hold it down for five seconds. Once the computer has turned itself off, wait between ten and fifteen seconds before turning the power on again by pressing the power button.



## System Recovery Options

About 1.5GB hidden partition is allocated on the hard disk drive for the System Recovery Options.

This partition stores files which can be used to repair the system in the event of a problem.



*The System Recovery Options feature will be unusable if this partition is deleted.*

### System Recovery Options

The System Recovery Options feature is installed on the hard disk when shipped from the factory. The System Recovery Options menu includes tools to repair startup problems, run diagnostics or restore the system.

See the **Windows Help and Support** content for more information about **Startup Repair**.

The System Recovery Options can also be run manually to repair problems.

The procedure is as follows. Follow the instructions shown on the on-screen menu.

1. Turn off the computer.
2. While holding the **F8** key, turn on the computer.
3. The **Advanced Boot Options** menu will be displayed.  
Use the arrow keys to select **Repair Your Computer** and press **ENTER**.
4. Follow the on-screen instructions.

The Windows Vista™ CompletePC Backup feature can be used on Windows Vista™ Business Edition and Ultimate Edition.

## System Recovery

This section describes the creation of Recovery Discs and their use.

### Creating Optical Recovery Discs

This section describes how to create Recovery Discs.



- *Be sure to connect the AC adaptor when you create Recovery Discs.*
- *Be sure to close all other software programs except the Recovery Disc Creator.*
- *Do not run software such as screen savers which can put a heavy load on the CPU.*
- *Operate the computer at full power.*
- *Do not use power-saving features.*
- *Do not write to the disc when the virus check software is running. Wait for it to finish, then disable virus detection programs including any software that checks files automatically in the background.*
- *Do not use utilities, including those intended to enhance hard disk drive access speed. They may cause unstable operation and damage data.*
- *Do not shut down/log off or Sleep/Hibernate while writing or rewriting the disc.*
- *Set the computer on a level surface and avoid places subjected to vibrations such as airplanes, trains, or cars.*
- *Do not use on an unstable surface such as a stand.*

A recovery image of the software on your computer is stored on the hard disk drive, and can be copied to either CD or DVD media by using the following steps:

1. Select either blank CD or DVD media.
2. The application will allow you to choose from a variety of different media onto which the recovery image can be copied including CD-R, CD-RW, DVD-R, DVD-R DL, DVD-RW, DVD+R, DVD+R DL and DVD+RW.



*Please note that some of the above media may not be compatible with the optical disc drive installed into your computer. You should therefore verify the optical disc drive supports the blank media you have chosen before proceeding.*

3. Turn on your computer and allow it to load the Windows Vista™ operating system from the hard disk drive as normal.
4. Insert the first blank media into the optical disc drive tray.
5. Double click the Recovery Disc Creator icon on the Windows Vista™ desktop, or select the application from **Start** Menu.
6. After Recovery Disc Creator starts, select the type of media and the title you wish to copy, and then click the **Create** button.



*If your optical disc drive can only write to CDs, select 'CD' as the 'Disc Set' within the Recovery Disc Creator application.*

*Otherwise, if your optical disc drive can write both CDs and DVDs, select the type of media you wish to create.*

## Restoring the pre-installed software from the Recovery hard disk drive

A portion of the total hard disk drive space is configured as a hidden recovery partition. This partition stores files which can be used to restore pre-installed software in the event of a problem.

If you subsequently set up your hard disk drive again, do not change, delete or add partitions in a manner other than specified in the manual, otherwise you may find that space for the required software is not available.

In addition, if you use a third-party partitioning program to reconfigure the partitions on your hard disk drive, you may find that it becomes impossible to setup your computer.



*When the sound mute feature has been activated by pressing the **FN + ESC** key, be sure to disable this to allow sounds to be heard before starting the restore process. Please refer to Chapter 5, [The Keyboard](#), for further details.*

*You can not use System Recovery Options if restoring the pre-installed software without System Recovery Options.*



*When you reinstall the Windows operating system, the hard disk will be reformatted and all data will be lost.*

1. Turn off your computer.
2. While holding down **0** (zero) key on the keyboard, turn on your computer.
3. A menu will be displayed from which you should follow the on-screen instructions.

## Restoring the pre-installed software from your created Recovery Discs

If the pre-installed files are damaged, you are able to either use the Recovery Discs you have created or the hard disk drive recovery process to restore the computer to the state it was in when you originally received it. To perform this restoration, follow the steps below:



*When the sound mute feature has been activated by pressing the **FN + ESC** key, be sure to disable this to allow sounds to be heard before starting the restore process. Please refer to Chapter 5, [The Keyboard](#), for further details.*

*You can not use System Recovery Options if restoring the pre-installed software without System Recovery Options.*



*When you reinstall the Windows operating system, the hard disk will be reformatted and all data will be lost.*

1. Load the Recovery Discs into the optical disc drive and turn off the computer's power.
2. While holding down **F12** key on the keyboard, turn on your computer - when the **In Touch with Tomorrow TOSHIBA** logo screen appears, release the **F12** key.
3. Use the left and right cursors key to select the CD-ROM icon from the menu. Please refer to the [Boot Priority](#) section in Chapter 7, HW Setup & BIOS Setup for further information.
4. A menu will be displayed from which you should follow the on-screen instructions.



*When removing pre-installed drivers / utilities or when installing, you can setup the respective drivers / utilities from the following folder.*

*C: \TOSAPINS\ \*\*\**

## Chapter 2

### The Grand Tour

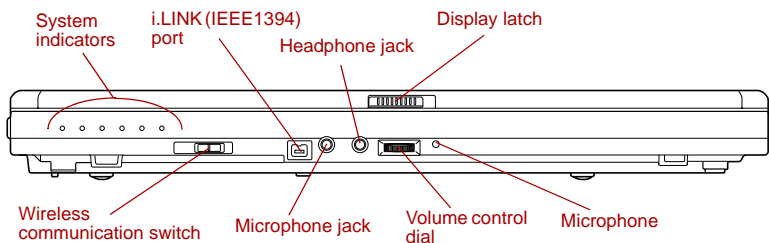
This chapter identifies the various components of the computer - it is recommended that you become familiar with each before you operate the computer.

#### **Legal Footnote (Non-applicable Icons)\*1**

For more information regarding Non-applicable Icons, please refer to the Legal Footnotes section in Appendix K or click the \*1 above.

### Front with the display closed







The following figure shows the computer's front with its display panel in the closed position.



*Figure 2-1 Front of the computer with display panel closed*

#### **System indicators**

These LED indicators allow you to monitor the status of various computer functions and are described in more detail within the [System indicators](#) section.

 Off On	<b>Wireless communication switch</b>	<p>Slide this switch to the left to turn off Wireless LAN and Bluetooth functions. Slide it to the right to turn on the functions.</p> <p>Only some models are equipped with Bluetooth and Wireless LAN functions.</p>
	<ul style="list-style-type: none"><li>■ <i>Turn Wi-Fi® and Bluetooth functionalities off when near a person who may have a cardiac pacemaker implant or other medical electric device. Radio waves may affect pacemaker or medical device operation, possibly resulting in serious injury. Follow the instruction of your medical device when using any Wi-Fi or Bluetooth functionality.</i></li><li>■ <i>Always turn off Wi-Fi or Bluetooth functionality if the computer is near automatic control equipment or appliances such as automatic doors or fire detectors. Radio waves can cause malfunction of such equipment, possibly resulting in serious injury.</i></li><li>■ <i>Do not use the Wi-Fi or Bluetooth functionalities near a microwave oven or in areas subject to radio interference or magnetic fields. Interference from a microwave oven or other source can disrupt Wi-Fi or Bluetooth operation.</i></li></ul>	
 S400	<b>i.LINK (IEEE1394) port</b>	<p>This port allows you to connect an external device, such as a digital video camera for high-speed data transfer.</p>
	<b>Microphone jack</b>	<p>A 3.5 mm mini microphone jack enables connection of a three-conductor mini jack for monaural microphone input.</p>
	<b>Headphone jack</b>	<p>A 3.5 mm mini headphone jack enables connection of stereo headphones.</p>
	<b>Display latch</b>	<p>This latch secures the display panel in its closed position. Slide the latch to open the display.</p>
	<b>Volume control dial</b>	<p>Use this dial to adjust the volume of the internal stereo speaker and optional external stereo headphones (if connected).</p> <p>Move the Volume control dial to the right to increase the volume and to the left to decrease the volume.</p>
	<b>Microphone</b>	<p>A built-in microphone allows you to import and record sounds for your application - please refer to the <a href="#">Sound System</a> section in Chapter 4, Operating Basics for more information.</p>

# Left side

The following figure shows the computer's left side.

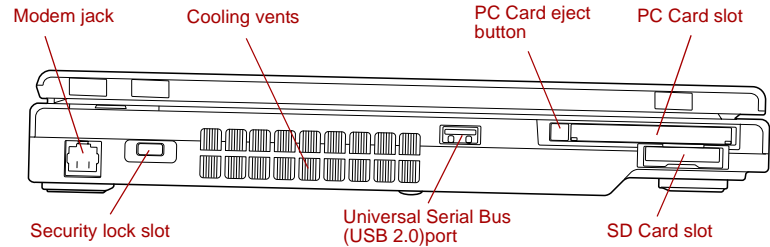


Figure 2-2 The left side of the computer



**Modem jack** The modem jack lets you use a modular cable to connect the modem directly to a telephone line.



- *Connection to any communication line other than an analog phone line could cause a PC system failure.*
- *Connect the built-in modem only to ordinary analog phone lines.*
- *Never connect the built-in modem to a digital line (ISDN).*
- *Never connect the built-in modem to the digital connector on a public telephone or to a digital private branch exchange (PBX).*
- *Never connect the built-in modem to a key telephone system for residences or offices.*
- *Never operate your PC on AC power during a thunderstorm. If you see lightning or hear thunder, immediately turn off the PC. An electric surge caused by the storm, may result in a system failure, loss of data or hardware damage.*



**Security lock slot** A security cable can be attached to this slot and then connected to a desk or other large object in order to deter theft of the computer.

**Cooling vents** The cooling vents help keep the processor from overheating.



*Do not block the cooling vents. Keep foreign metal objects, such as screws, staples and paper clips, out of the cooling vents. Foreign metal objects can create a short circuit, which can cause damage and fire, possibly resulting in serious injury.*



**Universal Serial Bus (USB 2.0) port** One Universal Serial Bus port, which complies to the USB 2.0 standard, is provided on the left hand side of the computer.



*Keep foreign metal objects, such as screws, staples and paper clips, out of the USB connectors. Foreign metal objects can create a short circuit, which can cause damage and fire, possibly resulting in serious injury.*



*Please note that it is not possible to confirm the operation of all functions of all USB devices that are available. In view of this it may be noted that some functions associated with a specific device might not operate properly.*

<b>PC Card slot</b>	This slot can accommodate a single Type II, 16-bit or 32-bit (CardBus) PC Card device.
<b>PC Card eject button</b>	This button is used in order to remove a PC Card from within the computer.



*Keep foreign metal objects, such as screws, staples and paper clips, out of the PC Card slot. Foreign metal objects can create a short circuit, which can cause damage and fire, possibly resulting in serious injury.*



<b>SD Card slot</b>	This slot can accommodate a single SD/SDHC Card in order to transfer data from devices, such as digital cameras, onto your computer.
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*Keep foreign metal objects, such as screws, staples and paper clips, out of the SD Card slot. Foreign metal objects can create a short circuit, which can cause damage and fire, possibly resulting in serious injury.*

## Right side

The following figure shows the computer's right side.

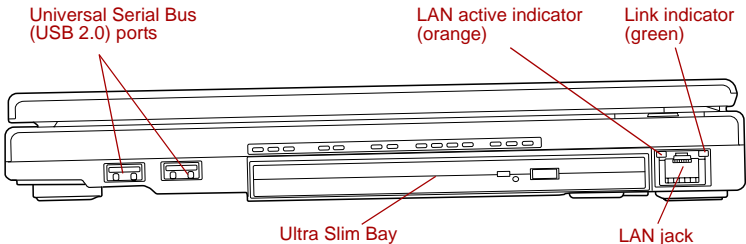


Figure 2-3 The right side of the computer



<b>Universal Serial Bus (USB 2.0) ports</b>	The Universal Serial Bus ports are on the right side. Refer to <a href="#">Left side</a> section, for details.
---	--





<b>Ultra Slim Bay</b>	A DVD Super Multi drive and Ultra Slim Bay HDD Adaptor can be installed in the Ultra Slim Bay.
<b>LAN jack</b>	This jack lets you connect to a LAN. The adaptor has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T), Fast Ethernet LAN (100 megabits per second, 100BASE-TX) and Gigabit Ethernet LAN (1000 megabits per second, 1000BASE-T). Refer to Chapter 4, <a href="#">Operating Basics</a> , for details.



- Do not connect any cable other than a LAN cable to the LAN jack. It could cause damage or malfunction.
- Do not connect the LAN cable to a power supply. It could cause damage or malfunction.

<b>Link indicator (green)</b>	This indicator glows green when the computer is connected to a LAN and the LAN is functioning properly.
<b>LAN active indicator (orange)</b>	This indicator glows orange when data is being exchanged between the computer and the LAN.

Back

The following figure shows the computer's back.

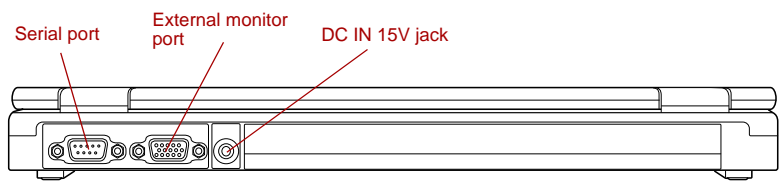


Figure 2-4 The back of the computer



<b>Serial port</b>	Use this 9-pin port to connect serial devices such as an external modem, serial mouse or serial printer.
<b>External monitor port</b>	This port allows you to connect an external monitor to the computer.



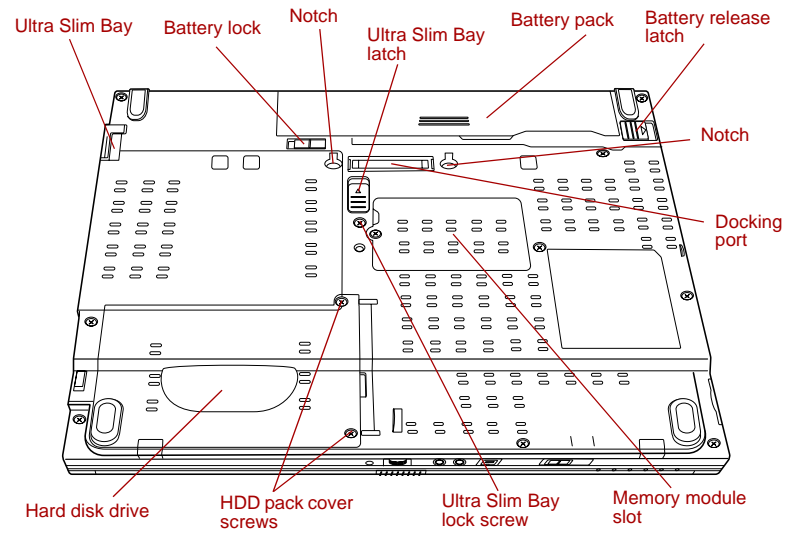


**DC IN 15V jack**

The AC adaptor connects to this jack in order to power the computer and charge its internal batteries. Please note that you should only use the model of AC adaptor supplied with the computer at the time of purchase - using the wrong AC adaptor can cause damage to the computer.

**Underside**

The following figure shows the underside of the computer. You should ensure that the display is closed before the computer is turned over to avoid causing any damage.

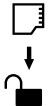


*Figure 2-5 The underside of the computer*



**Ultra Slim Bay**

Refer to the *Right side* section in this chapter for details.




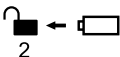

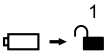



**Ultra Slim Bay latch**

Slide the latch to release or secure the Ultra Slim Bay ejector.



*Be sure to lock the Ultra Slim Bay latch before you transport or carry the computer.*

	<b>Notches</b>	Notches on the computer engage hooks on the TOSHIBA Express Port Replicator to ensure a secure connection.
	<b>Docking port</b>	This port enables connection of an optional TOSHIBA Express Port Replicator described in Chapter 3, <a href="#">Hardware, Utilities and Options</a> .
	<ul style="list-style-type: none"> <li>Only the TOSHIBA Express Port Replicator can be used with this computer. Do not attempt to use any other Port Replicator.</li> <li>Keep foreign objects out of the docking port. A pin or similar object can damage the computer's circuitry. A plastic shutter protects the connector.</li> </ul>	
	<b>Memory module slot</b>	<p>The slot B memory module is located here. The memory module slot allows for the installation, replacement and removal of additional memory module.</p> <p>Refer to the <a href="#">Additional memory module</a> section in Chapter 3, Hardware, Utilities and Options.</p>
	<b>Battery release latch</b>	Slide and hold this latch into its 'Unlock' position in order to release the battery pack ready for removal. For more detailed information on removing the battery pack please refer to Chapter 6, <a href="#">Power and Power-Up Modes</a> .
	<b>Battery pack</b>	The battery pack provides power to the computer when the AC adaptor is not connected. For more detailed information on the use and operation of the battery pack please refer to Chapter 6, <a href="#">Power and Power-Up Modes</a> .
	<b>HDD pack cover screws</b>	Two screws secures the HDD cover.
	<b>Hard disk drive</b>	This contains a Hard disk drive pack, which can be removed and reinstalled. For more information on how to remove or reinstall the <a href="#">Hard disk drive pack</a> , refer to the section on the in Chapter 3, Hardware, Utilities and Options.
	<b>Battery lock</b>	Slide the battery lock to release the battery pack for removal.
	<b>Ultra Slim Bay lock screw</b>	One screw secures the Ultra Slim Bay latch.

# Front with the display open

This section shows the computer with the display panel open. In order to open the display, simply slide the display latch on the front of the computer, lift the display panel up and position it at a comfortable viewing angle for you.

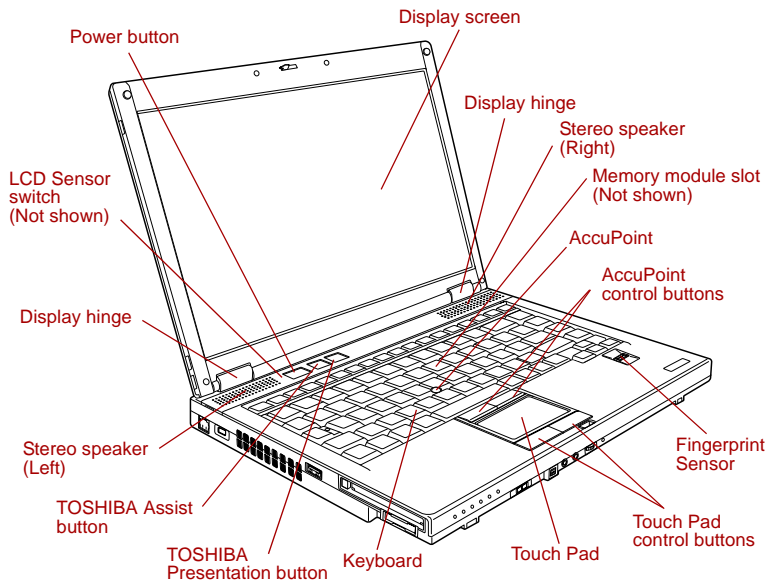







Figure 2-6 The front of the computer with the display panel open

<b>Display hinges</b>	The display hinges allow the display panel to be position at a variety of easy-to-view angles.
<b>Display screen</b>	Please be aware that, when the computer is operating on the AC adaptor, the image displayed on the internal screen will be somewhat brighter than when it operates on battery power. This difference in brightness levels is intended to save power when operating on batteries. For more information on the computer's display, please refer to the <a href="#">Display Controller and Video mode</a> section in Appendix B.
<b>Touch Pad</b>	The Touch Pad mouse control device located in the center of the palm rest is used to control the movement of the on-screen pointer. For more information, please refer to the <a href="#">Using the Touch Pad</a> section in Chapter 4, Operating Basics.

	<b>Touch Pad control buttons</b>	The control buttons located below the Touch Pad allow you to select menu items or manipulate text and graphics as designated by the on-screen pointer.
	<b>AccuPoint control buttons</b>	Control buttons below the keyboard let you select menu items or manipulate text and graphics designated by the on-screen pointer. Refer to the <a href="#">Using the AccuPoint</a> section in Chapter 4, Operating Basics.
	<b>AccuPoint</b>	A pointer control device located in the center of the keyboard is used to control the on-screen pointer. Refer to the <a href="#">Using the AccuPoint</a> section in Chapter 4, Operating Basics.
	<b>Keyboard</b>	The internal keyboard provides the embedded numeric overlay keys, dedicated cursor control overlay keys, and  and  Keys. The keyboard is compatible with the IBM® enhanced keyboard. Refer to Chapter 5, <a href="#">The Keyboard</a> , for details.
	<b>Stereo speakers</b>	The speakers emit sound generated by your software as well as audio alarms, such as low battery condition, generated by the system.
	<b>Power button</b>	Press this button to turn the computer's power on and off.
	<b>TOSHIBA Assist button</b>	Press this button to launch the program automatically. When power-off, Sleep Mode and Hibernation Mode, press this button to start the computer and launch the program.
	<b>TOSHIBA Presentation button</b>	The TOSHIBA Presentation button has the same functionality as the Connect display button in the Mobility Center. Pressing this button when an external display is connected will open the Windows Vista™ TMM (Transient Multimodal Manager) screen.
	<b>Fingerprint Sensor</b>	This sensor enables you to enroll and recognize a fingerprint.  For detailed information on Fingerprint Sensor, refer to Chapter 4, <a href="#">Using the Fingerprint Sensor</a> .

Memory module slot	<p>The slot A memory module is located here. The memory module slot allows for the installation, replacement and removal of additional memory module.</p> <p>Refer to the <a href="#">Additional memory module</a> section in Chapter 3, Hardware, Utilities and Options.</p>
LCD Sensor switch	<p>This switch senses when the display panel is either closed or opened and activates the Panel Power Off/On feature as appropriate. For example, when you close the display panel the computer enters Hibernation Mode and shuts itself down and then, when you next open the display, the computer will automatically start up and return you to the application you were previously working on.</p> <p>You can specify within the Power Options. To access it, click <b>Start -&gt; Control Panel -&gt; System and Maintenance -&gt; Power Options</b>.</p>



*Do not put any magnetic objects close to this switch as they may cause the computer to automatically enter Hibernation Mode and shut down even if the Panel Power Off feature is disabled.*

## Indicators

This section explains indicator functions.

### System indicators

LED system indicators next to their respective icons, glow when specific computer operations are in progress.



Figure 2-7 System indicators



SD Card	<p>The <b>SD Card</b> indicator glows green when the computer is accessing the device in the SD Card slot.</p>
DC IN	<p>The <b>DC IN</b> indicator normally glows green when power is being correctly supplied from the AC power adaptor. However, If the output voltage from the adaptor is abnormal, or if the computer's power supply malfunctions, this indicator will flash orange.</p>





### Power

The **Power** indicator normally glows green when the computer is turned on. However, if you turn the computer off into Sleep Mode, this indicator will flash orange - approximately one second on, two seconds off - both while the system is shutting down and while it remains turned off.



### Battery

The **Battery** indicator shows the condition of the battery's charge - green indicates the battery is fully charged, orange indicates the battery is charging, and flashing orange indicates a low battery condition. Please refer to Chapter 6, [Power and Power-Up Modes](#) for more information on this feature.



### Hard Disk Drive

The **Hard Disk Drive** indicator glows green whenever the computer is accessing the built-in hard disk drive or Ultra Slim Bay HDD.



### Wireless communication

The **Wireless communication** indicator blinks orange when the Bluetooth and Wireless LAN functions are turned on.

Only some models are equipped with Bluetooth and Wireless LAN functions.

## Keyboard indicators

The following figures show the positions of the CAPS LOCK indicator and the keypad overlay indicators which show the following conditions:

- When the CAPS LOCK indicator glows, the keyboard will produce capitals when any letter is typed.
- When the Arrow Mode indicator glows, the keypad overlay allows you to use cursor functions.
- When the Numeric Mode indicator glows, the keypad overlay allows you to enter numbers.

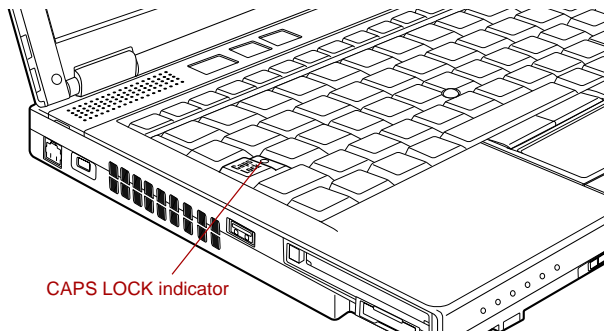


Figure 2-8 CAPS LOCK indicator

**CAPS LOCK** This indicator glows green when letter keys are locked into their uppercase format.

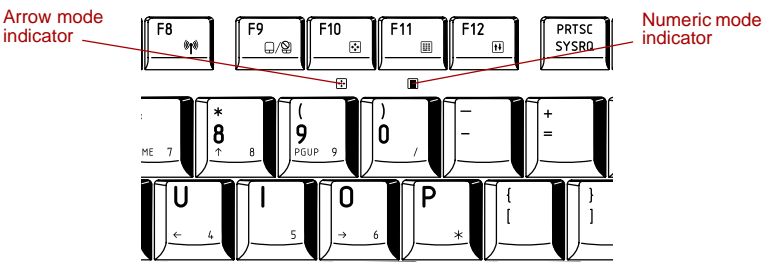


Figure 2-9 Keypad overlay indicators



**Arrow mode** When the **Arrow mode** indicator lights green, you can use the gray labeled keys on the keypad overlay as cursor keys. Please refer to the [Keypad overlay](#) section in Chapter 5, The Keyboard for more information.



**Numeric mode** When the **Numeric mode** indicator lights green, you can use the gray labeled keys on the keypad overlay for number entry. Please refer to the [Keypad overlay](#) section in Chapter 5, The Keyboard for more information.

## Optical disc drives

The computer is installed with a DVD Super Multi drive. An ATAPI interface controller is used for CD/DVD-ROM operation. When the computer is accessing a CD/DVD, an indicator on the drive glows.

For information on loading and unloading discs refer to the [Using optical disc drives](#) section in Chapter 4, Operating Basics.

### Region codes for DVD drives and media

DVD Super Multi drives and their associated media are manufactured according to the specifications of six marketing regions. When you purchase DVD-Video, make sure it matches your drive, otherwise it will not play properly.

Code	Region
1	Canada, United States
2	Japan, Europe, South Africa, Middle East
3	Southeast Asia, East Asia



4	Australia, New Zealand, Pacific Islands, Central America, South America, Caribbean
5	Russia, Indian Subcontinent, Africa, North Korea, Mongolia
6	China

## Writable discs

This section describes the types of writable CD/DVD discs. Check the specifications of your drive to see the types of discs it can write. Use TOSHIBA Disc Creator to write compact discs. Refer to Chapter 4, [Operating Basics](#).

## CDs

- CD-R discs can be written only once. The recorded data cannot be erased or changed.
- CD-RW discs including multi speed CD-RW discs, high-speed CD-RW discs and ultra-speed CD-RW discs can be recorded more than once.

## DVDs

- DVD-R and DVD+R discs can be written only once. The recorded data cannot be erased or changed.
- DVD-RW, DVD+RW and DVD-RAM discs can be recorded more than once.

## Formats

The drives support the following formats.

### ***DVD Super Multi drive Double Layer***

The drive supports the formats in addition to the DVD-ROM&CD-R/RW drive, and DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM, DVD-R DL (Format1), DVD+R DL.



*Some types and formats of DVD-R DL and DVD+R DL discs may be unreadable.*

## DVD Super Multi drive Double Layer

The full-size DVD Super Multi drive module lets you record data to rewritable CD/DVDs as well as run either 12 cm (4.72") or 8cm (3.15") CD/DVDs without using an adaptor.



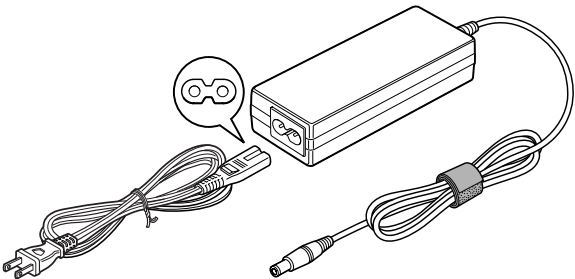
*The read speed is slower at the center of a disc and faster at the outer edge.*

<b>DVD read</b>	8 speed (maximum)
<b>DVD-R write</b>	8 speed (maximum)
<b>DVD-R DL write</b>	4 speed (maximum)
<b>DVD-RW write</b>	6 speed (maximum)
<b>DVD+R write</b>	8 speed (maximum)
<b>DVD+R DL write</b>	4 speed (maximum)
<b>DVD+RW write</b>	8 speed (maximum)
<b>DVD-RAM write</b>	5 speed (maximum)
<b>CD read</b>	24 speed (maximum)
<b>CD-R write</b>	24 speed (maximum)
<b>CD-RW write</b>	16 speed (maximum, Ultra-speed media)

## AC adaptor

The AC adaptor can automatically adjust to any voltage ranging from 100 to 240 volts and to a frequency of either 50 or 60 hertz, enabling you to use this computer in almost all country/region. The adaptor converts AC power to DC power and reduces the voltage supplied to this computer.

To recharge the battery, simply connect the AC adaptor to a power source and to the computer. Please refer to Chapter 6, [Power and Power-Up Modes](#) for further information.



*Figure 2-10 The AC adaptor (2-pin plug)*

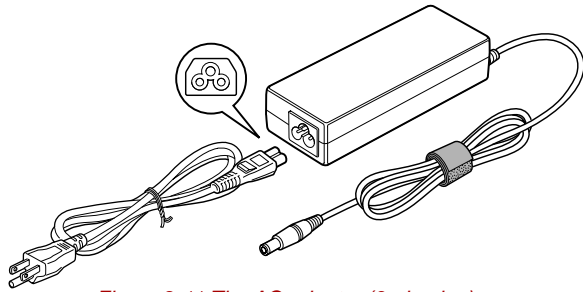


Figure 2-11 The AC adaptor (3-pin plug)



- Depending on the model in question, either a 2-pin or 3-pin adaptor/power lead will be bundled with the computer.
- Do not use a 3-pin to 2-pin conversion plug.
- The supplied power cord conforms to safety rules and regulations in the region the product is bought and should not be used outside of this region. In order to use the adaptor/computer in other regions, you should please buy a power cord that conforms to the safety rules and regulations in that particular region.



Always use the TOSHIBA AC adaptor that was included with your computer, or use AC adaptors specified by TOSHIBA to avoid any risk of fire or other damage to the computer. Use of an incompatible AC adaptor could cause fire or damage to the computer possibly resulting in serious injury. TOSHIBA assumes no liability for any damage caused by use of an incompatible adaptor.

# Chapter 3

## Hardware, Utilities and Options

### Hardware

This section describes the hardware of your computer.  
The actual specifications may vary depending on the model you purchased.

#### **Processor**

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##### **CPU**

The computer is equipped with one of the following Intel® processors.

- Intel® Core™ 2 Duo Processor, which incorporates a 2MB level2 cache memory. It also supports Enhanced Intel® SpeedStep® Technology.
- Intel® Core™ 2 Duo Processor, which incorporates a 4MB level2 cache memory. It also supports Enhanced Intel® SpeedStep® Technology.



*Some models in this series carry Intel® Centrino® Duo processor technology, which is based on three separate technologies of Intel® Core™ 2 Duo processor, Intel® PRO/Wireless Network Connection, and Mobile Intel® 965 Express Chipset Family.*

#### **Legal Footnote (CPU)\*2**

For more information on the CPU, please refer to the Legal Footnotes section in Appendix K or Click the \*2 above.

## Memory

<b>Slots</b>	512, 1,024 or 2,048MB memory modules can be installed in the computer's two memory slots for a maximum of 4,096MB system memory.
<b>Video RAM</b>	<p>The amount of Video RAM available is dependent on the computer's system memory.</p> <p><b>Start -&gt; Control Panel -&gt; Appearance and Personalization -&gt; Personalization -&gt; Display Settings.</b></p> <p>The amount of Video RAM can be verified by clicking the <b>Advanced Settings...</b> button in the Display Settings window.</p>

### **Legal Footnote (Memory (Main System))\*3**

For more information regarding Memory (Main System), please refer to the Legal Footnotes section in Appendix K or click the \*3 above.

## Power

<b>Battery pack</b>	The computer is powered by one rechargeable lithium-ion battery pack.
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### **Legal Footnote (Battery Life)\*4**

For more information regarding Battery Life, please refer to the Legal Footnotes section in Appendix K or click the \*4 above.

<b>RTC battery</b>	The internal RTC battery backs up the Real Time Clock (RTC) and calendar.
<b>AC adaptor</b>	<p>The AC adaptor provides power to the system and recharges the batteries when they are low. It comes with a detachable power cord which will either have a 2-pin or 3-pin plug enclosure.</p> <p>As the AC adaptor is universal, it can receive a range of AC voltages from 100 to 240 volts, however you should note that the output current varies among different models. Using the wrong adaptor can damage your computer. Refer to the <a href="#">AC adaptor</a> section in Chapter 2, The Grand Tour.</p>

## ***Disks***

### **Hard disk drive**

This computer is equipped with one of the following hard disk drive types. The capacity of each hard disk drive model is different.

- 80.0 billion bytes (74.53 GB)
- 120.0 billion bytes (111.79 GB)
- 160.0 billion bytes (149.05 GB)

Please note that part of the hard disk drive's overall capacity is reserved as administration space.

### ***Legal Footnote (Hard Disk Drive (HDD) Capacity)\*5***

For more information regarding Hard Disk Drive (HDD) Capacity, please refer to the Legal Footnotes section in Appendix K or click the \*5 above.

### ***Optical disc drive***

#### **Drive**

The following optical disc drive is pre-installed in this computer.

- DVD Super Multi drive Double Layer drive



*2.6GB and 5.2GB DVD-RAM media cannot be read from or written to.*

## ***Display***

The computer's internal display panel supports high-resolution video graphics and can be set to a wide range of viewing angles for maximum comfort and readability.

### **Display panel**

14.1" TFT LCD screen, 16 million colors, with one of the following resolutions:

- WXGA, 1280 horizontal x 800 vertical pixels
- WXGA+, 1440 horizontal x 900 vertical pixels

### ***Legal Footnote (LCD)\*6***

For more information regarding the LCD, please refer to the Legal Footnotes section in Appendix K or click the \*6 above.

### **Graphics controller**

The graphics controller maximizes display performance. Refer to [Display Controller and Video mode](#) section in Appendix B for more information.

### **Legal Footnote (Graphics Processor Unit ("GPU"))\*7**

For more information regarding the Graphics Processor Unit ("GPU"), please refer to the Legal Footnotes section in Appendix K or click the \*7 above.

## **Sound**

<b>Sound system</b>	The integrated sound system provides support for the computer's internal speakers and microphone, as allowing an external microphone and headphones to be connected via the appropriate jacks.
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## **Communications**

<b>Modem</b>	An internal modem provides capability for data and fax communication. It supports V.90 (V.92). Refer to <a href="#">V.90</a> section in Appendix E. The speed of data transfer and fax depends on analog telephone line conditions. It has a modem jack for connecting to a telephone line. It is preinstalled as a standard device in some markets. Both of V.90 and V.92 are supported only in USA and Canada. Only V.90 is available in other regions.
<b>LAN</b>	The computer has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T), Fast Ethernet LAN (100 megabits per second, 100BASE-TX) and Gigabit Ethernet LAN (1000 megabits per second, 1000BASE-T). It is pre-installed as a standard device in some markets.
<b>Bluetooth</b>	Some computers in this series offer Bluetooth wireless communication functionality which eliminates the need for cables between electronic devices such as computers, printers and mobile phones. When implemented, Bluetooth provides a fast, reliable and secure means to achieve wireless communication in a small space.

<b>Wireless LAN</b>	Some computers in this series are equipped with a Wireless LAN card that is compatible with other LAN systems based on Direct Sequence Spread Spectrum/Orthogonal Frequency Division Multiplexing radio technology that complies with the IEEE 802.11 Standard (Revision A, B, G or N Draft Ver. 1.0).
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### **Legal Footnote (Wireless LAN)\*8**

For more information regarding Wireless LAN, please refer to the Legal Footnotes section in Appendix K or click the \*8 above.

### **Ultra Slim Bay**

<b>Ultra Slim Bay Modules</b>	Ultra Slim Bay is a single-drive bay that accommodates a DVD Super Multi drive and secondary hard disk drive.
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## **Special features**

The following features are either unique to TOSHIBA computers or are advanced features which make the computer more convenient to use. Access each function using the following procedures.

\*1 To access the Power Options, click **Start -> Control Panel -> System and Maintenance -> Power Options**.

<b>TOSHIBA Assist button</b>	Press this button to launch the program automatically. When power-off, Sleep Mode and Hibernation Mode, press this button to start the computer and launch the program.
<b>TOSHIBA Presentation button</b>	The TOSHIBA Presentation button has the same functionality as the Connect display button in the Mobility Center. Pressing this button when an external display is connected will open the Windows Vista™ TMM (Transient Multimon Manager) screen.
<b>Hot keys</b>	Hot keys are specific key combinations that let you quickly change the system configuration directly from the keyboard without running a system program.
<b>Display automatic power off *1</b>	This feature automatically cuts off power to the computer's display panel when there is no keyboard input for a specified time, with power being restored the next time a key is pressed. This can be specified in the Power Options.



<b>HDD automatic power off</b> *1	This feature automatically cuts off power to the hard disk drive when it is not accessed for a specified time, with power being restored when the hard disk drive is next accessed. This can be specified in the Power Options.
<b>System automatic Sleep/Hibernation Mode</b> *1	This feature automatically shuts down the system into either Sleep Mode or Hibernation Mode when there is no input or hardware access for a specified time. This can be specified in the Power Options.
<b>Keypad overlay</b>	A ten-key numeric keypad is integrated into the keyboard. Please refer to the <a href="#">Keypad overlay</a> section in Chapter 5, The Keyboard, for information on using this feature.
<b>Power on password</b>	Two levels of password security, supervisor and user, are available to prevent unauthorized access to your computer.
<b>Instant security</b>	A specific hot key function automatically locks the system providing data security.
<b>Intelligent power supply</b> *1	A microprocessor in the computer's intelligent power supply detects the battery's charge, automatically calculates the remaining battery capacity and protects electronic components from abnormal conditions such as a voltage overload from the AC adaptor. This can be specified in the Power Options.
<b>Battery save mode</b> *1	This feature lets you configure the computer in order to save battery power. This can be specified in the Power Options.
<b>Panel power on/off</b> *1	This feature automatically turns power to the computer off when the display panel is closed, and turns it back on when the display panel is opened. This can be specified in the Power Options.
<b>Low battery automatic Hibernation Mode</b> *1	When battery power is exhausted to the point that computer operation cannot be continued, the system automatically enters Hibernation Mode and shuts itself down. This can be specified in the Power Options.

<b>Heat dispersal <sup>*1</sup></b>	To protect against overheating, the processor has an internal temperature sensor so that, if the computer's internal temperature rises to a certain level, the cooling fan is turned on or the processing speed is lowered. This can be specified in the Power Options.
<b>TOSHIBA HDD Protection</b>	This feature uses the acceleration sensor built in the computer to detect vibration and shocks, and automatically moves the hard disk drive's read/write head to a safe position in order to reduce the risk of damage that could be caused by head-to-disk contact. Refer to the <a href="#">Using the Hard Disk Drive (HDD) Protection</a> section in Chapter 4, Operating Basics, for more details.



*The TOSHIBA HDD Protection function does not guarantee that the hard disk drive will not be damaged.*

<b>Hibernation Mode</b>	This feature lets you turn off the power to the computer without exiting from your software. The contents of main memory are automatically saved to the hard disk drive so that when you next turn the power on again, you can continue working right where you left off. Refer to the <a href="#">Turning off the power</a> section in Chapter 1, Getting Started, for more details.
<b>Sleep Mode</b>	If you have to interrupt your work, you can use this feature to allow you to turn off power to the computer without exiting from your software. Data is maintained in the computer's main memory so that when you next turn on the power, you can continue working right where you left off.

## TOSHIBA Value Added Package

This section describes the TOSHIBA Component features pre-installed on the computer.

<b>TOSHIBA Power Saver</b>	TOSHIBA Power Saver provides you with the features of more various power supply managements.
<b>TOSHIBA Button Support</b>	<p>This utility controls the following computer button functions.</p> <ul style="list-style-type: none"> <li>■ TOSHIBA Assist</li> <li>■ TOSHIBA Presentation</li> </ul> <p>The starting application from the button can be changed.</p>
<b>TOSHIBA Zooming Utility</b>	This utility allows you to enlarge or reduce the icon size on the Windows Desktop, or the zoom factor associated with specific supported applications.
<b>TOSHIBA PC Diagnostic Tool</b>	The TOSHIBA PC Diagnostic Tool will display basic system configuration information and allow the functionality of some of the computer's built-in hardware devices to be tested.
<b>TOSHIBA Password Utility</b>	The TOSHIBA Password utility allows you to set a password in order to restrict access to the computer.
<b>TOSHIBA Flash Cards</b>	<p>The TOSHIBA Flash Cards provide a quick way to modify selected system functions and to launch applications.</p> <ul style="list-style-type: none"> <li>■ Hot key function</li> <li>■ TOSHIBA utility launcher function</li> </ul>
<b>HW Setup</b>	This utility allows you to customize your hardware settings according to the way you work with the computer and the peripherals you use.
<b>TOSHIBA Accessibility</b>	The TOSHIBA Accessibility utility provides support to movement impaired users when they need to use the TOSHIBA Hot-key functions. In use, the utility allows you to make the <b>FN</b> key 'sticky', that is you can press it once, release it, and they press one of the ' <b>F</b> ' keys in order to access its specific function. When set, the <b>FN</b> key will remain active until another key is pressed.

## Utilities and Applications

This section describes the pre-installed utilities that come with the computer and details how to start them. For further information on their operation, please refer to each utility's online manual, help files or README.TXT file.

### Fingerprint Utility

This product has a fingerprint utility installed for the purpose of enrolling and recognizing fingerprints which can then be linked to a username and password in order to remove the need to input these details from the keyboard. Just by swiping an enrolled finger against the fingerprint sensor, the following functions will be enabled:

- Logon to Windows and access a security enabled homepage through Internet Explorer.
- Files and folders can be encrypted/decrypted and third party access to them is prevented.
- Disable the password-protected screen-saver when returning from a power-saving mode such as Sleep Mode.
- Authentication of the User Password (and, if applicable, the HDD(Hard Disk Drive) Password) when booting up the computer (Power-on Security).
- Single Sign-on feature

### DVD Video Player

The DVD Video Player is used to play DVD-Video. It has an on-screen interface and functions. Click **Start -> All Programs -> InterVideo WinDVD -> InterVideo WinDVD for TOSHIBA**.



*Frame dropping, audio skipping or out of synch audio and video may occur during playback of some DVD Video titles.*

*Make sure to connect the computer's AC adaptor when playing a DVD Video. Power-saving features may interfere with smooth playback.*

### Bluetooth Stack for Windows by Toshiba

This software enables communication between the computer and external Bluetooth devices such as printers and mobile phones.



*Bluetooth functions cannot be used in models that do not have a Bluetooth module installed.*

**TOSHIBA SD  
Memory Boot Utility**

The TOSHIBA SD Memory Boot Utility allows you to create a bootable SD memory card to start the system. You can boot TOSHIBA SD Memory Boot Utility from the menu bar as follows. Click **Start -> All Programs -> TOSHIBA -> Utilities -> SD Memory Boot Utility**.



*SD Memory Card Format Utility and other SD functions are packaged into TOSHIBA SD Memory Utilities.*

**TOSHIBA SD  
Memory Card Format**

This utility allows you to format an SD/SDHC memory card by the SD standard format.

**TOSHIBA Assist**

TOSHIBA Assist is a graphical user interface that provides access to specific tools, utilities and applications that make the use and configuration of the computer easier.

**TOSHIBA ConfigFree**

TOSHIBA ConfigFree is a suite of utilities that improve the ease and control of communication devices and network connections, help in the identification of communication problems and allow the creation of profiles if you need to switch between different locations and communication networks. To access this utility, click **Start -> All Programs -> TOSHIBA -> Networking -> ConfigFree**.

**TOSHIBA Mic Effect**

TOSHIBA Mic Effect provides you the Echo Canceller and the Microphone Array functions. For more instructions for this software, refer to the [Sound System](#) section in Chapter 4, Operating Basics.

**TOSHIBA Disc  
Creator**

You can create CD's and DVD's in a number of formats including audio CD's that can be played on a standard CD player, and data CD's/DVD's which can store copies of the files and folders on your computer's hard disk drive. This software can be used on models with a DVD Super Multi drive.

To start this utility, click **Start -> All Programs -> TOSHIBA -> CD&DVD Applications -> Disc Creator**.

<b>TOSHIBA DVD-RAM Utility</b>	<p>This utility has the function of Physical Format and Write-Protect to DVD-RAM. This utility is contained the setup module of TOSHIBA Disc Creator. To start this utility, click <b>Start -&gt; All Programs -&gt; TOSHIBA -&gt; CD&amp;DVD Applications -&gt; DVD-RAM Utility</b>.</p>
<b>CD/DVD Drive Acoustic Silencer</b>	<p>This utility allows you to configure the read speed of the optical disc drive. You can either configure Normal Mode, which operates the drive at its maximum speed for quick data access, or Quiet Mode which runs audio CDs at single speed and which can lessen operational noise.</p> <p>It is ineffective with DVDs.</p>
<b>Display Rotation Settings</b>	<p>This utility allows you to quickly rotate the Windows Desktop by either 0 degrees and 180 degrees. In use you are able to perform a rotation function by pressing either <b>CTRL + ALT + Up Arrow ( ↑ )</b> to rotate 0 degrees or <b>CTRL + ALT + Down Arrow ( ↓ )</b> to rotate 180 degrees - in a multi-monitor setup, the display that contains the cursor will be affected by these changes.</p>
<b>Windows Mobility Center</b>	<p>This section describes the Windows Mobility Center. Mobility Center is a utility for accessing several mobile PC settings quickly in one window. A default maximum of eight tiles are provided by the operating system, and the additional two tiles are added to your Mobility Center.</p> <ul style="list-style-type: none"> <li>■ <b>Lock Computer :</b> This can be used to lock your computer without turning it off. This has the same function as the <b>Lock</b> button at the bottom of the right pane in the start menu.</li> <li>■ <b>TOSHIBA Assist :</b> This can be used to open <b>TOSHIBA Assist</b> if it is already installed in your computer.</li> </ul>

## Optional devices

Optional devices can expand the computer's capabilities and its versatility. This section describes the connection or installation of the following devices:

### **Cards/memory**

- PC Card
- SD/SDHC Card (SD memory card, SDHC memory card)
- Additional memory module

### **Peripheral devices**

- Hard disk drive pack
- Ultra Slim Bay HDD Adaptor
- USB FDD Kit
- External monitor
- i.LINK (IEEE1394)
- Serial port
- TOSHIBA Express Port Replicator

### **Other**

- Security lock

## PC Card

The computer is equipped with a single PC Card slot that can accommodate a Type II format card. Any PC Card that meets industry standards, either manufactured by TOSHIBA or another vendor, can be installed as the slot supports 16-bit PC Cards and 32-bit CardBus cards. For reference, CardBus supports the newer standard of 32-bit PC Cards and provides superior performance for the greater demands of applications such as multimedia data transmission.



*PC Cards can sometimes become hot during computer operation. Before you remove a PC Card always wait for it to cool. You could get burned removing a hot PC Card.*

### **Inserting a PC Card**

The Windows hot-install feature allows you to insert PC Cards while the computer is turned on.

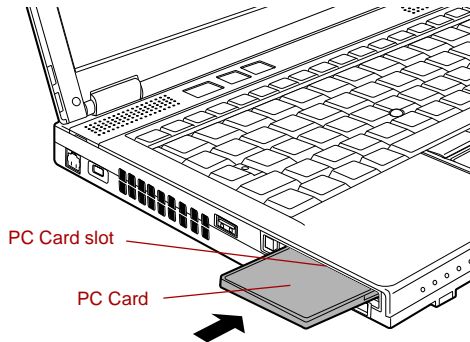


*Do not insert a PC Card while the computer is in Sleep Mode or Hibernation Mode as you may find that some cards do not work properly.*

To insert a PC Card, follow the steps as detailed below:

1. Insert the PC Card into the PC Card slot on the side of the computer.

2. Press the PC Card gently to ensure a firm connection is made.



*Figure 3-1 Inserting the PC Card*

3. After inserting the PC Card you should refer to its documentation and also check the configuration in Windows in order to ensure that it is correct.

### **Removing a PC Card**

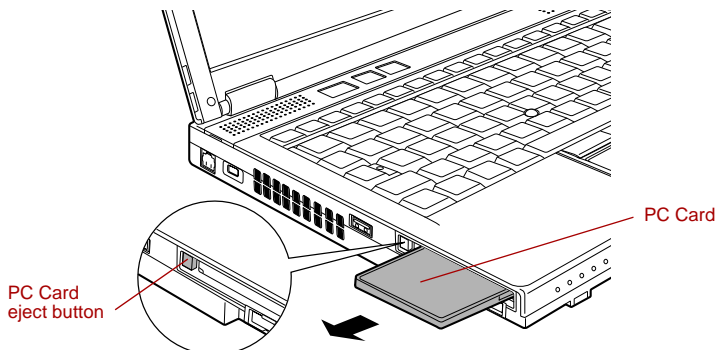
To remove a PC Card, follow the steps as detailed below:

1. Open the **Safely Remove Hardware** icon on the Windows Task Bar.
2. Point to **PC Card** and click the left Touch Pad control button.
3. Press the PC Card eject button to partially extend it out of the computer.



*If the PC Card is not inserted all the way into the computer, the eject button may not cause it to pop out sufficiently to allow it to be grasped. In this instance, simply push the PC Card firmly back into the computer and then press the eject button again.*

4. Press the extended PC Card eject button in order to eject the PC Card partially out of the computer.
5. Grasp the PC Card and remove it.



*Figure 3-2 Removing the PC Card*




## SD/SDHC Card


Set the SD Card type SD memory cards and SDHC memory cards in the SD Card slot.



*Keep foreign objects out of the SD Card slot. Never allow metal objects, such as screws, staples and paper clips, to enter the computer or keyboard. Foreign metal objects can create a short circuit, which can cause computer damage and fire, possibly resulting in serious injury.*



*The Logo of SD memory card is (  ).*

*The Logo of SDHC memory card is (  ).*

### Card Type

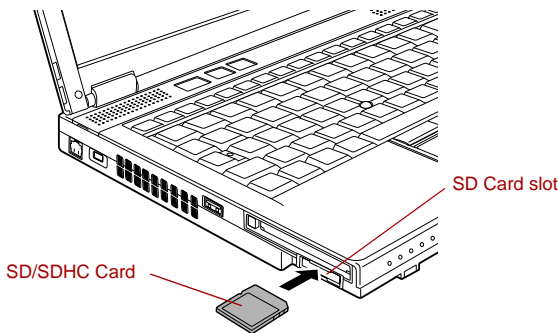
### Capacities

SD	8MB, 16MB, 32MB, 64MB, 128MB, 256MB, 512MB, 1GB, 2GB
SDHC	4GB, 8GB

## Inserting an SD/SDHC Card

To insert an SD/SDHC Card, follow the steps as detailed below:

1. Insert the SD/SDHC Card into the SD Card slot on the side of the computer.
2. Press the SD/SDHC Card gently to ensure a firm connection is made.



*Figure 3-3 Inserting an SD/SDHC Card*



- *Make sure the SD/SDHC Card is oriented properly before you insert it.*
- *Make sure that the SD/SDHC Card is facing the correct direction when inserting it into the SD Card slot.*
- *Do not turn the computer off or switch to Sleep Mode or Hibernation Mode while files are being copied - doing so may cause data to be lost.*

## Removing an SD/SDHC Card

To remove an SD/SDHC Card, follow the steps as detailed below:

1. Open the **Safely Remove Hardware** icon on the Windows Task Bar.
2. Point to **SD Memory Card** and click the left Touch Pad control button.
3. Press the SD/SDHC Card to partially extend it out of the computer.
4. Grasp the SD/SDHC Card and remove it.

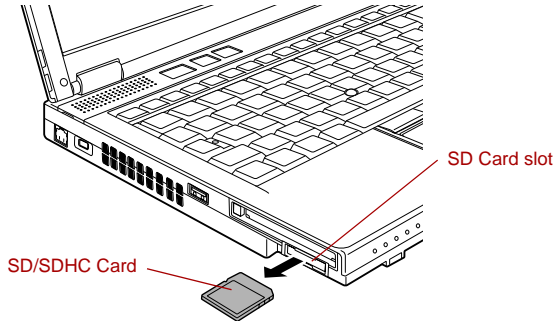


Figure 3-4 Removing an SD/SDHC Card



- Make sure the **SD Card** indicator is out before you remove the SD/SDHC Card or turn off the computer's power. If you remove the SD/SDHC Card or turn off the power while the computer is accessing the SD/SDHC Card you may lose data or damage the card.
- Do not remove an SD/SDHC Card while the computer is in Sleep or Hibernation Mode. The computer could become unstable or data in the SD/SDHC Card could be lost.

## SD/SDHC memory card

SD/SDHC Cards let you easily transfer data from devices, such as digital cameras and Personal Digital Assistants, that use SD/SDHC Card flash-memory. The cards have a high level of security and copy protection features.



SD/SDHC memory cards comply with SDMI (Secure Digital Music Initiative), which is a technology adopted to prevent unlawful copy or playback of digital music. For this reason, you cannot copy or playback protected material on another computer or other device. You may not use the reproduction of any copyrighted material except for your personal enjoyment.

### **Formatting an SD/SDHC Card**

SD/SDHC memory cards are sold already formatted in conformity to specific standards. If you format the SD/SDHC Card again, be sure to format it with the TOSHIBA SD Memory Card Format utility, not with the format command provided within Windows.

In order to run the TOSHIBA SD Memory Card Format utility, click **Start -> All Programs -> TOSHIBA -> Utilities -> SD Memory Card Format**. Please note that the TOSHIBA SD Memory Card Format utility does not format the protected area of the SD/SDHC memory card - should you need to format all areas of the memory card, including the protected area, you will need to obtain an appropriate application that applies the copy protection system.

## **Media care**

Observe the following precautions when handling the card.

### **Card care**

- Do not twist or bend cards.
- Do not expose cards to liquids or store in humid areas or lay media close to containers of liquid.
- Do not touch the metal part of a card or expose it to liquids or let it get dirty.
- After using card, return it to its case.
- The card is designed so that it can be inserted only one way. Do not try to force the card into the slot.
- Do not leave a card partially inserted in the slot. Press the card until you hear it click into place.

### **Memory card care**

- Set the write-protect switch to the lock position, if you do not want to record data.
- Memory cards have a limited lifespan, so it is important to backup important data.
- Do not write to a card if the battery power is low. Low power could affect writing accuracy.
- Do not remove a card while read/write is in progress.



*For more details on using memory cards, see manuals accompanying the cards.*

## Additional memory module

This computer is equipped with two memory slots; Slot A is beneath the keyboard and Slot B is in the underside of the computer.

You can install additional memory into the computer in order to increase the amount of system memory that is available. This section describes how to install and remove optional memory modules.



- *You should place a mat beneath the computer in order to prevent the computer's lid from becoming scratched or damaged when you are installing/replacing the memory module. In this instance you should avoid mats that are made of materials that hold or generate static electricity.*
- *When installing or removing a memory module, you must ensure that you do not touch any other internal areas of the computer.*
- *Insert the two memory modules into Slot A and Slot B respectively. The computer will operate in dual channel mode. You can access the inserted memory modules efficiently in dual channel.*



- *Use only memory modules approved by TOSHIBA.*
- *Do not try to install or remove a memory module under the following conditions.*
  - a. *The computer is turned on.*
  - b. *The computer was shut down in either Sleep or Hibernation Mode.*
  - c. *Wake-up on LAN is enabled.*
  - d. *Wake-up on Wireless LAN is enabled.*
  - e. *The wireless communication switch is turned on.*
- *Be careful not to let screws or other foreign matter fall into the computer. It could cause malfunction or electric shock.*
- *Additional memory module is a precision electronic component that may be fatally damaged by static electricity. Since the human body can carry static electricity, it is important that you discharge yourself before touching or installing any additional memory modules. To discharge your body's static electricity, simply touch any metal close to you with bare hands.*

### **Point to note about memory module error**

If you install a memory module that is not compatible with the computer, the **Power** indicator will flashes (on for 0.5 seconds, off for 0.5 seconds) in the following ways;

- If there is an error in only Slot A or no memory module is inserted in Slot A: repeatedly flashes orange twice, then green.
- If there is an error in Slot B: repeatedly flashes orange, then green twice.
- If there are errors in both Slot A and Slot B: repeatedly flashes orange twice, then green twice.

In all instances you should shut down the computer and remove the incompatible module(s).

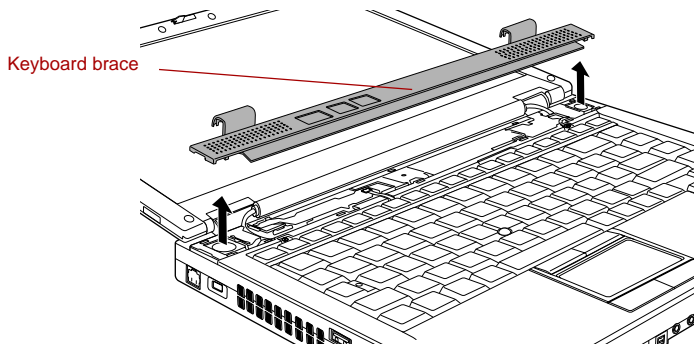


*Use a point size 0 Phillips screwdriver to remove and fasten the screws - the use of an incorrect screwdriver can damage the screw heads.*

### **Installing a memory module (Slot A)**

To install a memory module, follow the steps as detailed below:

1. Set the computer to Boot Mode and turn its power off - make sure the **Power** indicator is off (refer to the [Turning off the power](#) section in Chapter 1, Getting Started if required).
2. Remove the AC adaptor and all cables and peripherals connected to the computer.
3. Turn the computer upside down and remove the battery pack (refer to [Replacing the battery pack](#) section in Chapter 6, Power and Power-Up Modes, if required).
4. Turn your computer over.
5. Open the display panel so that the screen faces directly upward.
6. Slip your finger under a notch at the end of the keyboard brace and lift up to release latches and remove the keyboard brace.



*Figure 3-5 Removing the keyboard brace*

7. Remove two screws securing the keyboard.

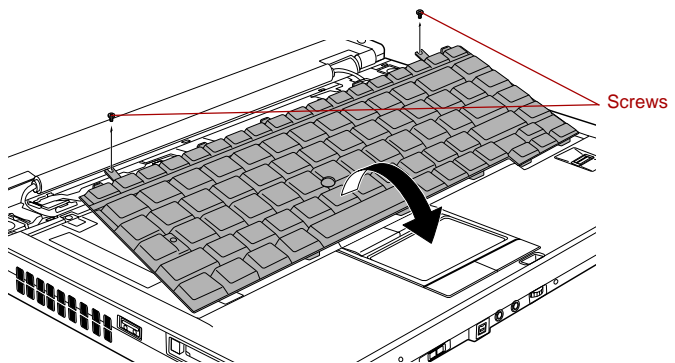


Use a point size 0 Phillips screwdriver.

8. Lift up the back of the keyboard, rotate it toward you and lay in face down on the palm rest.

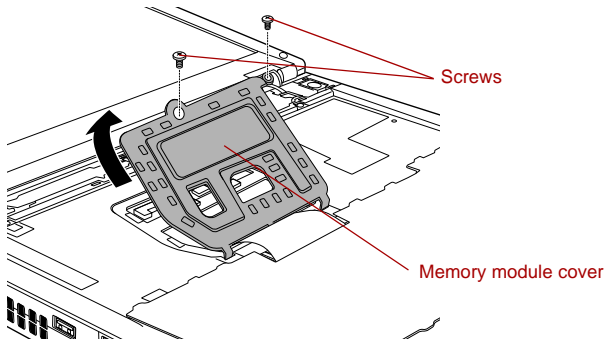


- Never allow metal objects, such as screws, staples and paper clips, to enter the computer or keyboard. Foreign metal objects can create a short circuit, which can cause computer damage and fire, possibly resulting in serious injury.
- When you move the keyboard forward, do not touch the keys. Doing so could cause misalignment. Hold the keyboard by the sides and lay it gently on the palm rest.
- The keyboard is connected to the computer by a keyboard ribbon cable. Be careful not to apply tension to this cable when you lift up the keyboard. Do not try to disconnect this cable.



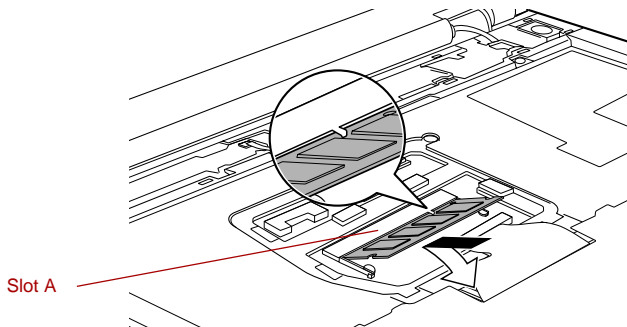
*Figure 3-6 Removing two screws and rotate the keyboard*

9. Remove the two screws and take off the memory module cover.



*Figure 3-7 Removing the memory module cover*

10. Align the notch of the memory module with that of the memory slot and gently insert the module into the slot at about a 45 degree angle before holding it down until the latches on either side snap into place.



*Figure 3-8 Installing the memory module*



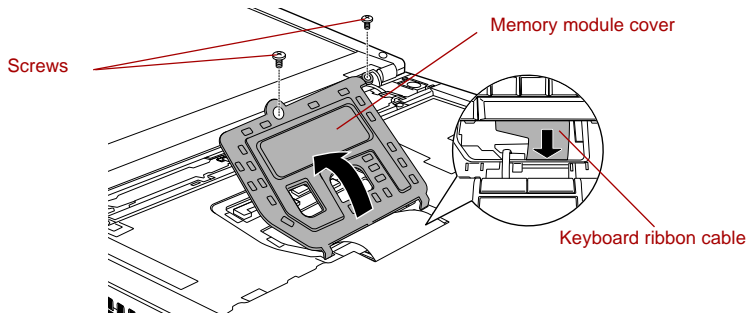
- *Never allow metal objects, such as screws, staples and paper clips, to enter the computer or keyboard. Foreign metal objects can create a short circuit, which can cause computer damage and fire, possibly resulting in serious injury.*
- *Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.*
- *The memory module cover will be hot after using the computer for long periods of time. Exercise caution when removing.*



- *The slot A is reserved for main memory. Use the slot B for expanded memory. If only one card is installed, use the slot A.*
- *Align the grooves along the edges of the memory module with the locking tabs on the connector and insert the module into the connector firmly - if you find it difficult to install the memory module, gently prise the locking tabs outwards using the tip of your finger. Please also ensure that you hold the memory module along its left and right hand edges - the edges with the grooves in.*

11. Screw in the two screws and replace the memory module cover.

12. Tuck the keyboard ribbon cable into the groove under the memory module cover.



*Figure 3-9 Seating the memory module cover*

13. Insert the tabs on the front of the keyboard into the corresponding notches on the computer and place the keyboard down.

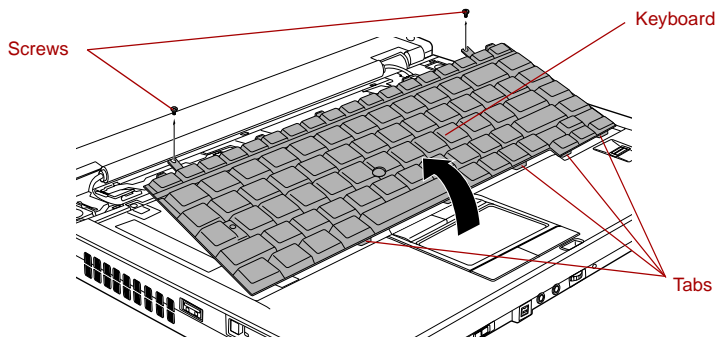


*When seating the keyboard, be sure to connect the circuit board if the keyboard ribbon cable was pulled out while you were removing the keyboard.*

14. Replace the keyboard and secure it using the two screws.



*Be sure to use all two screws removed in step 7. Make sure no screw was dropped into the computer. Make sure no foreign matter can be found inside the computer.*



*Figure 3-10 Replace the keyboard*

15. Set the keyboard brace into its groove and hold down to secure the latches.
16. Install the battery pack. Refer to [Replacing the battery pack](#) section in Chapter 6, Power and Power-Up Modes, for details.
17. Turn your computer over.
18. Turn the computer on and make sure the added memory is recognized - to confirmed it, **Start -> Control Panel -> System and Maintenance -> System** icon.



## Removing a memory module (Slot A)



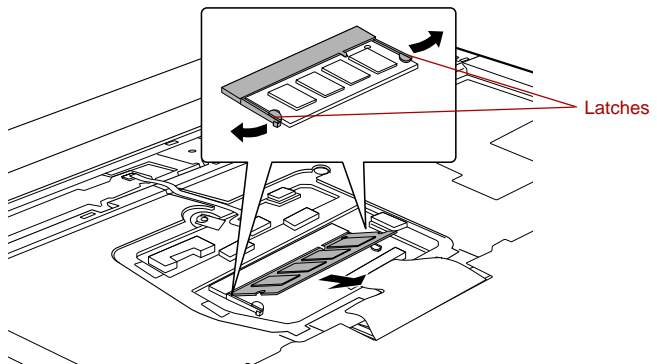
*The slot A is reserved for main memory. Use the slot B for expanded memory. If only one card is installed, use the slot A.*

To remove the memory module, follow the steps as detailed below:

1. Set the computer to Boot Mode and turn its power off - make sure the **Power** indicator is off (refer to the [Turning off the power](#) section in Chapter 1, Getting Started if required).
2. Remove the AC adaptor and all cables and peripherals connected to the computer.
3. Turn the computer upside down and remove the battery pack (refer to [Replacing the battery pack](#) section in Chapter 6, Power and Power-Up Modes, if required).
4. Follow steps 4 through 9 in [Installing a memory module \(Slot A\)](#) to appear the memory module.
5. Push the latches to the outside to release the memory module. A spring will force one end of the memory module up.
6. Grasp the sides of the module and pull it out.



- *If you use the computer for a long time, the memory modules and the circuits locating close to the memory modules will become hot. In this case, let them cool to room temperature before you replace them. Or you will get burnt if you touch any of them.*
- *Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.*



*Figure 3-11 Removing the memory module*

7. Rotate the keyboard back into place and secure the keyboard brace as described in the previous section.
8. Install the battery pack. Refer to [Replacing the battery pack](#) section in Chapter 6, Power and Power-Up Modes, for details.
9. Turn your computer over.

## Installing a memory module (Slot B)

To install a memory module, follow the steps as detailed below:

1. Set the computer to Boot Mode and turn its power off - make sure the **Power** indicator is off (refer to the [Turning off the power](#) section in Chapter 1, Getting Started if required).
2. Remove the AC adaptor and all cables and peripherals connected to the computer.
3. Turn the computer upside down and remove the battery pack (refer to the [Replacing the battery pack](#) section in Chapter 6, Power and Power-Up Modes, if required).
4. Loosen the screw securing the memory module cover in place - please note that this screw is attached to the cover in order to prevent it from being lost.



Use a point size 0 Phillips screwdriver.

5. Slide your fingernail or a thin object under the cover and lift it off.

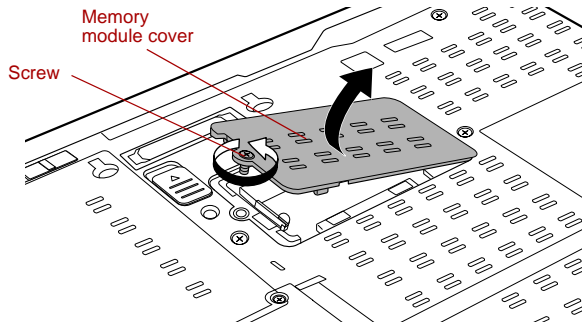


Figure 3-12 Removing the memory module cover

6. Align the notch of the memory module with that of the memory slot and gently insert the module into the slot at about a 45 degree angle before holding it down until the latches on either side snap into place.

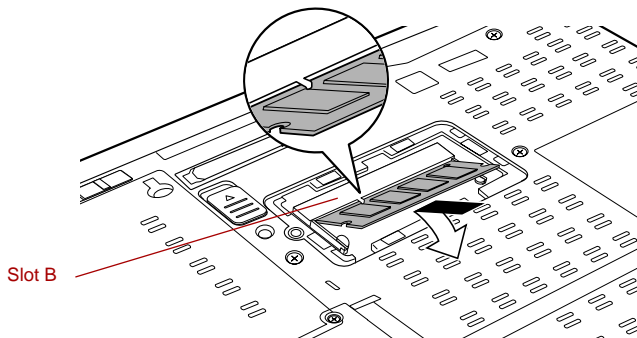


Figure 3-13 Seating the memory module



- *Never allow metal objects, such as screws, staples and paper clips, to enter the computer. Foreign metal objects can create a short circuit, which can cause computer damage and fire, possibly resulting in serious injury.*
- *Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.*



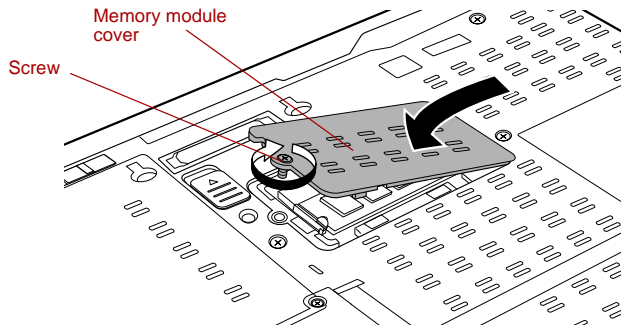
*Align the grooves along the edges of the memory module with the locking tabs on the connector and insert the module into the connector firmly - if you find it difficult to install the memory module, gently prise the locking tabs outwards using the tip of your finger.*

*Please also ensure that you hold the memory module along its left and right hand edges - the edges with the grooves in.*

7. Seat the memory module cover in place and secure it with one screw.



*Take care to ensure that the memory module cover is firmly closed.*



*Figure 3-14 Seating the memory module cover*

8. Install the battery pack - refer to [Replacing the battery pack](#) section in Chapter 6, Power and Power-Up Modes, if required.
9. Turn your computer over.
10. Turn the computer on and make sure the added memory is recognized - to confirmed it, **Start** -> **Control Panel** -> **System and Maintenance** -> **System** icon.

### **Removing a memory module (Slot B)**

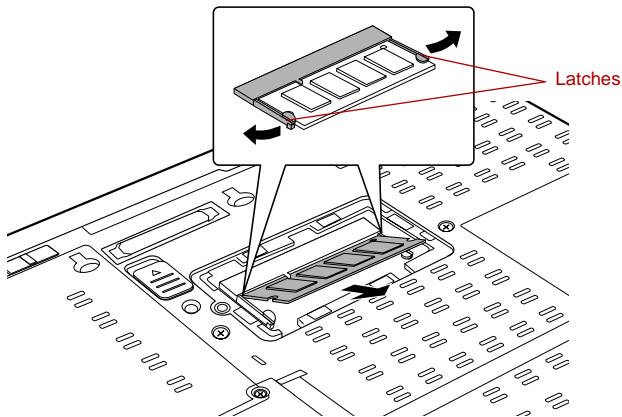
To remove the memory module, follow the steps as detailed below:

1. Set the computer to Boot Mode and turn its power off - make sure the **Power** indicator is off (refer to the [Turning off the power](#) section in Chapter 1, Getting Started if required).
2. Remove the AC adaptor and all cables and peripherals connected to the computer.

3. Turn the computer upside down and remove the battery pack (refer to [Replacing the battery pack](#) section in Chapter 6, Power and Power-Up Modes, if required).
4. Loosen the screw securing the memory module cover in place - please note that this screw is attached to the cover in order to prevent it from being lost.
5. Slide your fingernail or a thin object under the cover and lift it off.
6. Push the latches away from the module in order to release it - a spring will force one end of the module up at an angle.
7. Grasp the module by its edges and remove it from the computer.



- *If you use the computer for a long time, the memory modules and the circuits locating close to the memory modules will become hot. In this case, let them cool to room temperature before you replace them. Or you will get burnt if you touch any of them.*
- *Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.*



*Figure 3-15 Removing the memory module*

8. Seat the memory module cover in place and secure it with one screw.



*Take care to ensure that the memory module cover is firmly closed.*

9. Install the battery pack - refer to [Replacing the battery pack](#) section in Chapter 6, Power and Power-Up Modes, if required.
10. Turn your computer over.

## Hard disk drive pack

An extra hard disk drive expands the flexibility of your system and allows you to carry your data separately without having to carry the computer.

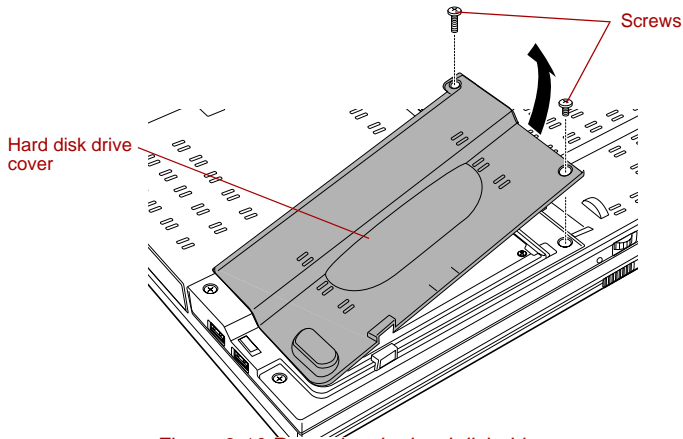


*Use a point size 0 Phillips screwdriver to remove and fasten the screws - the use of an incorrect screwdriver can damage the screw heads.*

### Removing the hard disk drive pack

To remove the hard disk drive pack, follow the steps as detailed below:

1. Set the computer to Boot Mode and turn its power off - make sure the **Power** indicator is off (refer to the [Turning off the power](#) section in Chapter 1, Getting Started if required).
2. Remove the AC adaptor and all cables and peripherals connected to the computer.
3. Turn the computer upside down and remove the battery pack (refer to [Replacing the battery pack](#) section in Chapter 6, Power and Power-Up Modes, if required).
4. Loosen two screws securing the hard disk drive cover in place.
5. Lift the cover up and out, and remove it from the computer.



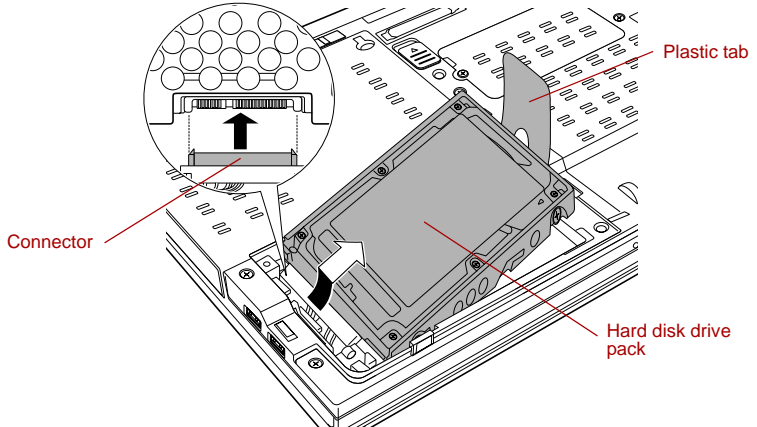
*Figure 3-16 Removing the hard disk drive cover*

6. Pull the hard disk drive pack up to a vertical position by holding the plastic tab.

7. With the hard disk drive in a vertical position, lift it straight up and away from the connector.



*Never allow metal objects, such as screws, staples and paper clips, to enter the computer. Foreign metal objects can create a short circuit, which can cause computer damage and fire, possibly resulting in serious injury.*



*Figure 3-17 Removing the hard disk drive pack*

### ***Installing the hard disk drive pack***

To install the hard disk drive pack, follow the steps as detailed below:

1. Move the connector until it is vertical.
2. Hold the hard disk drive vertically with its label on the left.
3. Connect the hard disk drive to the connector.

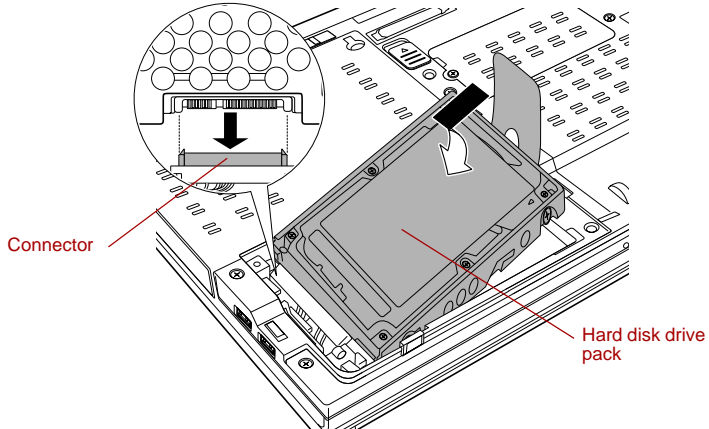


*Ensure that the hard disk drive is connected to the connector in a vertical position. If the hard disk drive is slanted and connected to the connector, it might damage the connector.*

4. With the connector connected, lower the hard disk drive down to the storage position.



*Never allow metal objects, such as screws, staples and paper clips, to enter the computer. Foreign metal objects can create a short circuit, which can cause computer damage and fire, possibly resulting in serious injury.*



*Figure 3-18 Installing the hard disk drive pack*

5. Seat the cover and press down until the latches click into place.
6. Secure the cover with two screws.



*Check that the screws are the proper length and reattach the cover.*

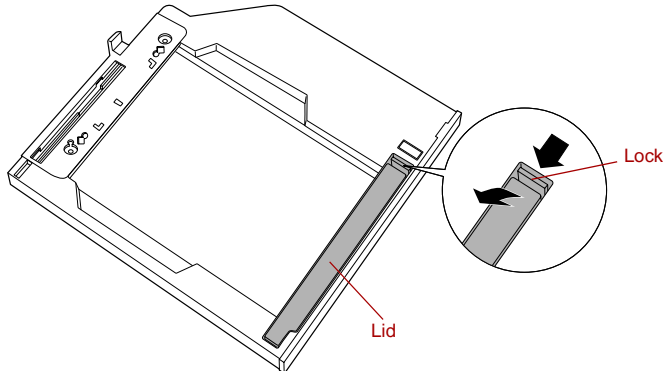
7. Turn your computer over.

## Ultra Slim Bay HDD Adaptor

You can increase your computer's data storage capacity by installing an additional 100.0 billion bytes (93.16 GB) hard disk drive in the Ultra Slim Bay.

To install a hard disk drive in the Ultra Slim Bay HDD Adaptor follow the steps below.

1. Slide the lock to the unlock position and open the lid.

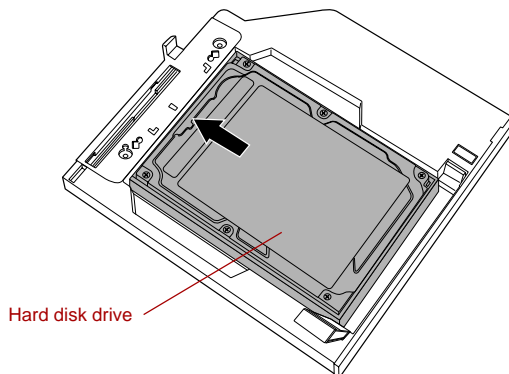


*Figure 3-19 Opening the lid*

2. Insert the hard disk drive in the Ultra Slim Bay HDD Adaptor and push forward to ensure a firm connection.



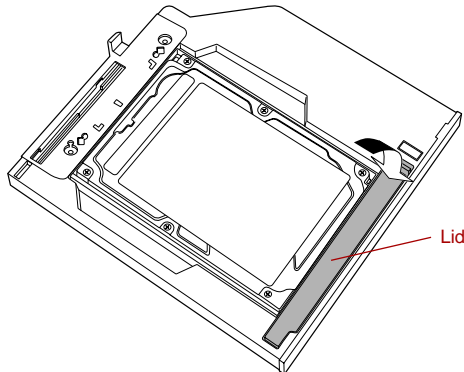
*Tuck the Plastic tab underneath the hard disk drive.*



*Figure 3-20 Inserting the hard disk drive*



3. Close the lid and slide the lock to the lock position.



*Figure 3-21 Closing the lid*

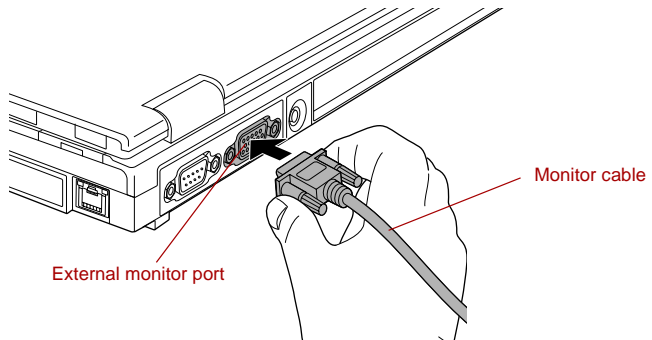
For details on inserting the Ultra Slim Bay HDD Adaptor in the computer's Ultra Slim Bay slot, refer to Chapter 4, [Operating Basics](#).

## External monitor

An external analog monitor can be connected to the external monitor port on the computer. To connect a monitor, follow the steps as detailed below:

### **Connecting the monitor cable**

1. Turn the computer's power off.
2. Connect the monitor cable to the external monitor port.



*Figure 3-22 Connecting the monitor cable to the external monitor port*

3. Turn the external monitor's power on.
4. Turn the computer's power on.

When you turn on the power, the computer will automatically recognize the monitor and determine whether it is a color or monochrome device. In the event that you find that there are issues getting an image displayed on the correct monitor, you should consider using the **FN + F5** hot key to change the display settings (if you then disconnect the external monitor before you turn the computer's power off, be sure to press **FN + F5** hot key again to switch to the internal display).

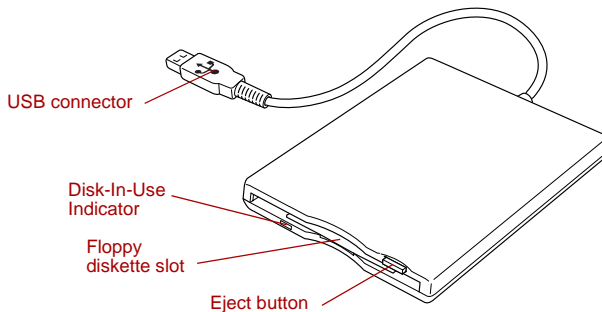
Please refer to Chapter 5, [The Keyboard](#), for further details on using hot keys to change the display setting.



*Do not disconnect the external monitor while in Sleep or Hibernation Mode. Turn off the computer before disconnecting the external monitor.*

## USB FDD Kit

The USB floppy diskette drive accommodates either a 1.44MB or 720KB floppy diskette and connects to one of the computer's USB ports.



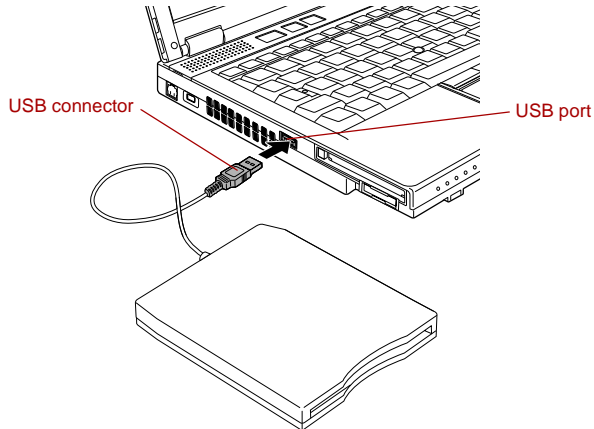
*Figure 3-23 The USB floppy diskette drive*

## Connecting the USB floppy diskette drive

To connect the drive, plug the floppy diskette drive's USB connector into a computer's USB port.



*Make sure the connector is properly aligned with the socket. Do not try to force the connection, doing so can damage the connecting pins.*



*Figure 3-24 Connecting the USB floppy diskette drive*



*If you connect the USB floppy diskette drive after the computer has already been turned on, it will take about ten seconds for it to be recognized by the computer. Do not attempt to disconnect and reconnect the drive before this period has elapsed.*

## Disconnecting the USB floppy diskette drive

When you have finished using the USB floppy diskette drive, you can follow the procedures below in order to disconnect it:

1. Wait for the Disk-In-Use Indicator light to go out to make sure all floppy diskette activity has stopped.



*If you disconnect the USB floppy diskette drive or turn off the power while the computer is accessing the drive you may lose data or damage the floppy diskette or the drive.*

2. Click the **Safely Remove Hardware** icon on the Windows Task Bar.
3. Click the USB floppy diskette drive device that you want to remove.
4. Carefully pull the floppy diskette drive's USB connector out from within the computer's USB port.

## i.LINK (IEEE1394)

i.LINK (IEEE1394) is used for high-speed data transfer for a range of compatible devices such as:

- Digital video cameras
- Hard disk drives
- MO drives
- Writable optical disc drives



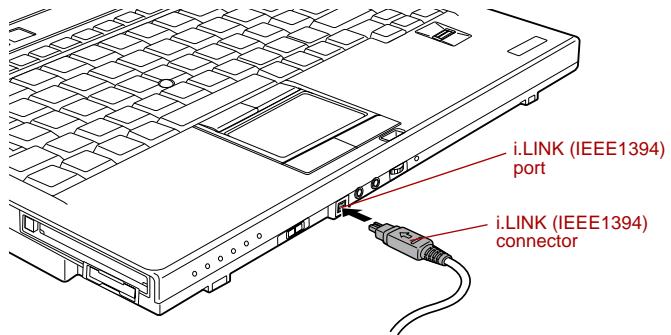
*i.LINK uses a four-pin connector, which does not carry any electric current. External devices will need their own power supply to operate.*

### Precautions

- Make a back-up of your data before transferring it to the computer. There is a possibility that the original data will be damaged. There is a particular risk that some frames will be deleted in the case of digital video transfer. TOSHIBA assumes no liability for such loss of data.
- Do not transfer data in areas where static electricity is easily generated or in areas subjected to electronic noise. Data can be destroyed.
- If you are transferring data through an IEEE1394 hub, do not connect or disconnect other devices from the hub during data transfer. There is a likelihood that data will be damaged. Connect all devices to the hub before you turn on the computer's power.
- You may not use any copyrighted video or music data copied from a video camera except for your personal enjoyment.
- If you connect/disconnect an i.LINK device to/from another i.LINK device that is currently exchanging data with the computer, data frames might be dropped.
- Make sure data transfer has ended or turn off the computer, before you:
  - Connect/disconnect an i.LINK device to/from the computer.
  - Connect/disconnect an i.LINK device to/from another i.LINK device that is connected to the computer.

## Connecting

1. Make sure the connectors are properly aligned and plug the i.LINK (IEEE1394) cable into the computer.



*Figure 3-25 Connecting the i.LINK (IEEE1394) cable into the computer*

2. Plug the other end of the cable into the device.

Note the following when you use i.LINK:

- You may need to install drivers for your i.LINK devices.
- Not all i.LINK devices have been tested. Therefore, compatibility with all i.LINK devices cannot be guaranteed.
- Some devices might not support sleep or automatic off functions.
- Do not connect or disconnect an i.LINK device while it is using an application or when the computer is automatically shutting it down to save power. Data might be destroyed.

## Disconnecting

1. Open the **Safely Remove Hardware** icon on the Task Bar.
2. Point to **i.LINK (IEEE1394) device** and click.
3. Disconnect the cable from the computer then from the i.LINK device.



*Refer also to the documentation that came with your i.LINK device.*

## Serial port

The serial connector can be used to connect to RS-232C compatible devices.

RS-232C compatible devices include the following:

- Modem
- Mouse
- Printer

To connect a serial port, follow the steps as detailed below:

1. Turn the computer's power off.
2. Connect the serial connector to the serial port and tighten the screws on the left and right hand side.

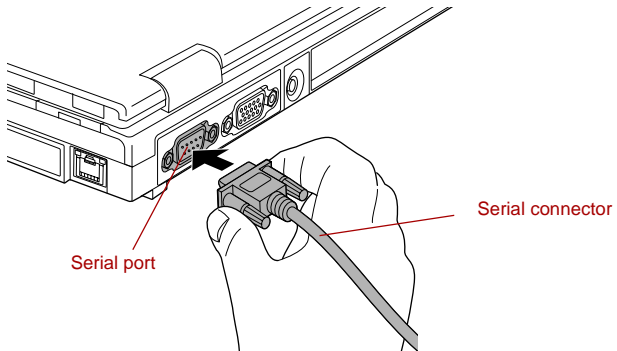


Figure 3-26 Connecting the serial connector to the serial port

## TOSHIBA Express Port Replicator

In addition to the ports available on the computer, the TOSHIBA Express Port Replicator connects directly to the docking interface on the underside of the computer. The AC adaptor connects the TOSHIBA Express Port Replicator to a power source.



*The computer must be configured properly before connecting to a LAN. Logging onto a LAN using the computer's default settings could cause a malfunction in LAN operation. Check with your LAN administrator regarding set-up procedures.*



- You must connect the AC adaptor before you connect to a TOSHIBA Express Port Replicator.
- When a TOSHIBA Express Port Replicator is connected to the computer, you can not use the following computer's ports: LAN jack, DC IN 15V jack and External monitor port.
- When connecting an AC Adaptor to the TOSHIBA Express Port Replicator, use only the AC Adaptor included with TOSHIBA Express Port Replicator. Do not use the computer's AC Adaptor.

The following ports are available on the TOSHIBA Express Port Replicator.

- RJ45 LAN jack
- External monitor port
- DC IN 15V jack
- Security lock slot
- Universal Serial Bus 2.0 port (four)
- DVI port



- *As the port operation of all DVI (Digital Visual Interface) monitors has not been confirmed, some DVI monitors may not function properly.*
- *Set the TOSHIBA Express Port Replicator's Slide Adjuster to SLIDE position #3 when connecting this computer to the TOSHIBA Express Port Replicator. Refer to the TOSHIBA Express Port Replicator User's Manual for more details on connection methods.*

## Security lock

A security locks enable you to anchor your computer a desk or other heavy object in order to help prevent unauthorized removal or theft. The computer has a security lock slot on its left side into which you can attach one end of the security cable, while the other end attaches to a desk or similar object. The methods used for attaching security cables differ from product to product. Please refer to the instructions for the product you are using for more information.

### Connecting the security lock

In order to connect a security cable to the computer, follow the steps as detailed below:

1. Turn the computer so its left hand side faces you.
2. Align the security cable with the 'lock hole' and secure it in place.

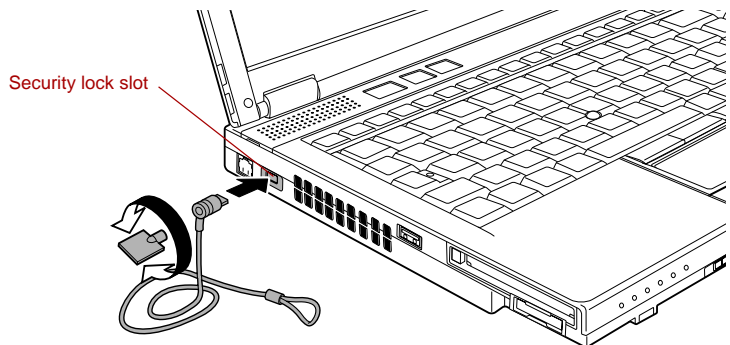


Figure 3-27 Security lock

## Optional accessories

You are able to add a number of options and accessories in order to make your computer even more powerful and convenient to use. For reference, the following list details some of the items that are available from your reseller or TOSHIBA dealer:

<b>DDR2-667 Memory Module</b>	A 512MB, 1,024MB or 2,048MB memory module (DDR2-667) can easily be installed in the computer.
<b>Universal AC Adaptor</b>	If you frequently use your computer at more than one site, it may be convenient to purchase an additional AC adaptor to be kept at each site in order to remove the need to always carry the adaptor with you.
<b>Battery Pack</b>	An additional battery pack can be purchased for use as either a spare or replacement. Please refer to Chapter 6, <i>Power and Power-Up Modes</i> for further information.
<b>High Capacity Battery Pack</b>	An additional battery pack can be purchased for use as either a spare or replacement.
<b>Extended Capacity Battery Pack</b>	An additional battery pack can be purchased for use as either a spare or replacement.
<b>Battery Charger</b>	The optional battery charger allows you to charge extra battery packs outside of having to use the computer.
<b>USB FDD Kit</b>	The USB floppy diskette drive accommodates either a 1.44MB or 720KB floppy diskette through connection to one of the computer's USB ports. In use, please be aware that, while you cannot format 720KB floppy diskettes under Windows Vista™, you are able to read and write to diskettes that have already been formatted.
<b>TOSHIBA Express Port Replicator</b>	The TOSHIBA Express Port Replicator provides the ports available on the computer in addition to a digital visual interface (DVI) port, External monitor port, four Universal Serial Bus ports (USB 2.0) and a LAN jack.
<b>100GB HDD Kit (Serial-ATA)</b>	You can increase your computer's data storage capacity with an additional 100.0 billion bytes (93.16 GB) hard disk drive.



### ***Ultra Slim Bay options***

The following modules can be installed in the Ultra Slim Bay. All other modules are options.

---

<b>Ultra Slim Bay HDD Adaptor</b>	An adaptor lets you install an optional hard disk drive described in <a href="#">Ultra Slim Bay HDD Adaptor</a> .
<b>Ultra Slim Bay DVD Super Multi (Double Layer) Drive Kit</b>	Refer to the <a href="#">Hardware</a> section for details.

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## Chapter 4

### Operating Basics

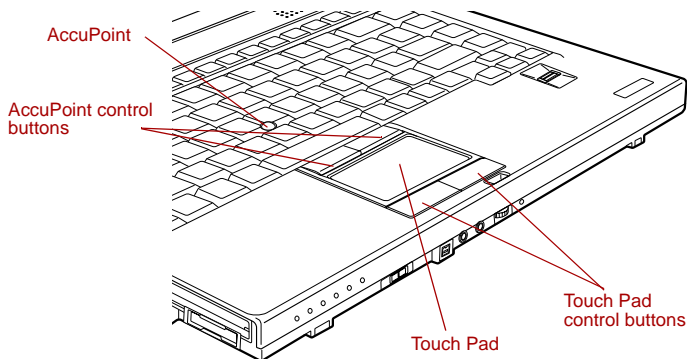
This chapter describes the basic operations of your computer, highlights the precautions that should be taken when using it.

#### TOSHIBA Dual Pointing Device

The computer is equipped with a dual point system: a Touch Pad and an AccuPoint pointing stick.

##### Using the Touch Pad

To use the Touch Pad, simply touch and move your fingertip across it in the direction you want the on-screen pointer to go.



*Figure 4-1 Touch Pad and Touch Pad control buttons*

The two buttons below the Touch Pad are used like the buttons on a standard mouse - press the left button to select a menu item or to manipulate text or graphics designated by the pointer, and press the right button to display a menu or other function depending on the software you are using.



You can also tap the Touch Pad to perform functions similar to those of the left button on a standard mouse.

**Click:** Tap once

**Double-click:** Tap twice

**Drag and drop:** Tap to select the item(s) you want to move, leave your finger on the Touch Pad after the second tap and then move the item(s) to their new destination.

## Using the AccuPoint

To use the AccuPoint, simply push it with your finger tip in the direction you want to move the on-screen pointer.

Two buttons above the Touch Pad work in the same way with the AccuPoint as they do with the Touch Pad. Refer to the [Using the Touch Pad](#) section for details.

### AccuPoint precautions

Certain conditions can affect the on-screen pointer when using AccuPoint. For example, the pointer may travel contrary to AccuPoint operation or an error message may appear, if

- You touch the AccuPoint during power-up.
- You apply constant, soft pressure during power-up.
- There is a sudden temperature change.
- Strong stress is applied to the AccuPoint.

If an error message appears, reboot the computer. If an error message does not appear, wait a moment for the pointer to stop, then continue operation.

### Replacing the cap

The AccuPoint cap is an expendable item that should be replaced after prolonged use. The spare AccuPoint cap is supplied with the computer.

1. To remove the AccuPoint cap, firmly pinch the cap and pull it straight up.

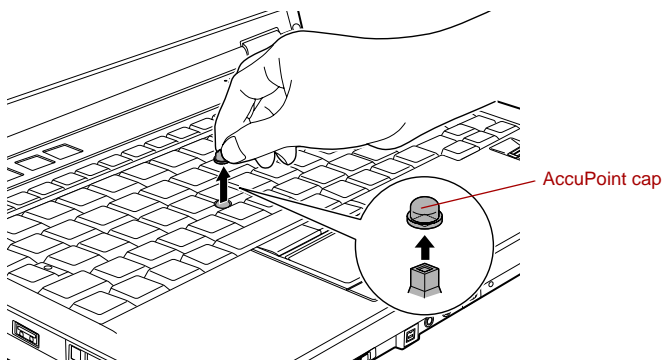


Figure 4-2 Removing the AccuPoint cap

2. Position a new cap on the peg and press it into place.



*The peg is square, so be careful to align the cap's square hole with the peg.*

## Using the Fingerprint Sensor

This product has a fingerprint utility installed for the purpose of enrolling and recognizing fingerprints. By enrolling the ID and password onto the fingerprint authentication feature, it is no longer necessary to input the password from the keyboard. Fingerprint feature enables you to:

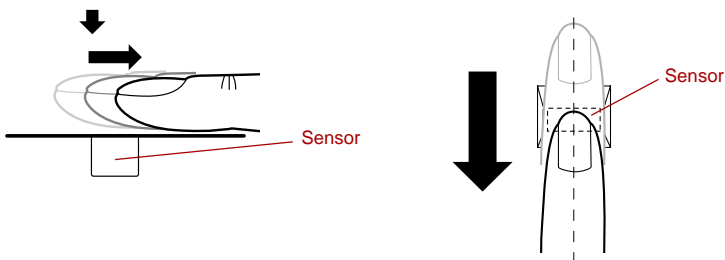
- Logon to Windows and access a security enabled homepage through Internet Explorer.
- Files and folders can be encrypted/decrypted and third party access to them prevented.
- Disable the password-protected screen-saver when returning from a power-saving mode such as Sleep Mode.
- Authentication of the User Password (and, if applicable, the HDD(Hard Disk Drive) Password) when booting up the computer (Power-on Security).
- Single Sign-on facility

### How to Swipe your Finger

Using the following steps when swiping fingers for fingerprint registration or authentication will help to minimize authentication failures:

Align the first joint of the finger at the center of the sensor, then lightly touch the sensor and swipe finger horizontally towards you until the sensor surface becomes visible. In performing this process, you should also take care to ensure that the center of your fingerprint is on the sensor.

The following illustrations show the recommended way to swipe your finger over the fingerprint sensor.



*Figure 4-3 Swipe the finger*



- *Avoid swiping with your finger stiff or pressed too hard onto the sensor, and take care to ensure that the center of the fingerprint is touching the sensor before swiping. Either of these conditions may cause fingerprint reading to fail.*
- *Check the center of the fingerprint whirl before swiping and then ensure this is swiped along the center line of the sensor.*
- *There is a possibility of authentication failures if the finger is swiped too quickly or too slowly - follow any on-screen instructions to adjust the speed used during the swipe process.*

## Points to note about the Fingerprint Sensor

Please be aware of the following considerations when using the fingerprint sensor. A failure to follow these guidelines might result in damage to the sensor, sensor failure, fingerprint recognition problems or a lower fingerprint recognition success rate.

- Do not scratch or poke the sensor with your nails or any hard or sharp objects.
- Do not press the sensor strongly.
- Do not touch the sensor with a wet finger or any wet objects - keep the sensor surface dry and free from water vapor.
- Do not touch the sensor with a soiled or dirty finger as minute foreign particles of dust and dirt may scratch it.
- Do not paste stickers or write on the sensor.
- Do not touch the sensor with a finger or any other object which may have a build-up of static electricity on it.

Observe the following before you place your finger on the sensor whether for fingerprint enrollment/registration or recognition.

- Wash and dry your hands thoroughly.
- Remove static electricity from your fingers by touching any metal surface. Static electricity is a common cause of sensor failures, especially when the weather is dry.
- Clean the sensor with a lint-free cloth - do not use detergent or any other chemicals to clean the sensor.
- Avoid the following finger conditions for enrollment or recognition as they may result in fingerprint enrollment errors or a drop in the fingerprint recognition success rate
  - Soaked or swollen finger, for example as may occur after taking a bath.
  - Injured finger
  - Wet finger
  - Soiled or oily finger
  - Extremely dry skin condition on finger

Observe the following to improve the fingerprint recognition success rate.

- Enroll two or more fingers.
- Enroll additional fingers if a recognition failure often occurs when using already enrolled fingers.
- Check the condition of your finger - any conditions which have changed since enrollment, such as injury, rough skin, and extremely dry, wet, soiled, dirty, oily, soaked or swollen fingers, may lower the recognition success rate. Also if the fingerprint is worn down or the finger becomes thinner or fatter, the recognition success rate may be lowered.
- As the fingerprint for each finger is different and unique you should ensure that only the registered or enrolled fingerprint or fingerprints are used for identification.
- Check the position and speed at which you swipe your finger across the sensor - please refer to the preceding drawing.
- The fingerprint sensor compares and analyzes the unique characteristics in a fingerprint. However, there may be instances where certain users are unable to register their fingerprints due to insufficient unique characteristics in their fingerprints.
- The recognition success rate may differ from user to user.

### ***How to Delete the Fingerprint Data***

Saved fingerprint data is stored in special non-volatile memory inside the fingerprint sensor. Therefore, if you give the computer to someone else, or dispose of it in any way, the following process is recommended to delete your fingerprint information:

1. To run this program, click **Start -> All Programs -> Protector Suite QL -> Control Center**.
2. The **Protector Suite Software** screen is displayed.
3. Click **Fingerprints** and click **Delete**.
4. Click **Settings** and click **Fingerprint Storage Inspector**.
5. The **Fingerprint Storage Inspector** screen will be displayed. If fingerprint data is displayed as part of the list, simply select all of this information and then **Remove**.
6. Check whether all of the fingerprint data was deleted on the **Fingerprint Storage Inspector** screen.

In use, please be aware of the following limitations of the fingerprint sensor:

- A warning message will be displayed when recognition is abnormal or recognition is not successful within a fixed duration.
- The fingerprint sensor compares and analyzes the unique characteristics in a fingerprint. However, there may be instances where certain users are unable to register their fingerprints due to insufficient unique characteristics in their fingerprints.
- The recognition success rate may differ from user to user.

- Toshiba does not guarantee that this fingerprint recognition technology will be error-free.
- Toshiba does not guarantee that the fingerprint sensor will recognize the enrolled user or accurately screen out unauthorized users at all times. Toshiba is not liable for any failure or damage that might arise out of the use of this fingerprint recognition software or utility.

## Points to note about the Fingerprint Utility software



*You are able to backup saved fingerprint data and information within the PasswordBank by using the Import or Export User Data facility under the fingerprint management software. However, please be aware that any encrypted files cannot be backup within FileSafe using this function - in these instances it is recommended that you backup these files to external media using standard file copy processes.*

The Encrypting File System (EFS) is a Windows Vista™ feature.

If a file is encrypted using EFS, it cannot be encrypted further using the fingerprint authentication function.

If both the fingerprint sensor and Trusted Platform Module (TPM) security are used as identification devices, you must install and configure the Infineon TPM Professional package first before you setup and configure the fingerprint utility. Please refer to the **TPM (Trusted Platform Module) Installation Guide** for further information on the installation and configuration considerations relating to TPM.

In the Help File, it is stated that this software's PasswordBank function can be used for managing security relating to the Internet as well as for general applications. However, please be aware that the Internet PasswordBank function within the fingerprint utility provided on this computer can only be used with Microsoft's Internet Explorer software.

## Set Up Procedure

Please use the following procedure when first using fingerprint authentication.

### **Fingerprint Registration**

You should initially enroll the required authentication data using the **User Enrollment Wizard**.



- *In use, the fingerprint authentication system will use the same username and password as defined within the Windows operating system. If no Windows password has been configured, you must do this before starting the fingerprint registration process.*
- *Up to twenty-one fingerprint patterns can be registered on this sensor.*

1. To run this program, click **Start -> All Programs -> Protector Suite QL -> User Enrollment**.



You are also able to start the User Enrollment Wizard by using the following methods.

- Click the Protector Suite QL icon in the Task Bar.
- Swipe your finger across the Fingerprint Sensor.

2. Click **Next**.
3. At the **User's Password** screen which is then displayed, you should ensure that the same Windows username is displayed before entering the appropriate password into the **Enter your password** field. Once this has been done, click **Next**.
4. At the **Hints for Fingerprint Enrollment** screen, confirm the message displayed and ensure that there is a check mark in the **Run Interactive Tutorial** box. Once this has been done, click **Next**.
5. At the **Correct Swipe Procedure** screen, confirm the message that is displayed and then click **Next**.
6. At the **Scanning Practice** screen, you are able to practice swiping your finger to ensure you use the correct method. Once you have finished practicing, click **Next**.
7. At the **User's Fingers** screen, select the finger that you wish to enroll from the illustration and then click **Next**. On this screen please be aware that any previously enrolled fingerprints would have green check marks, while the fingerprint that you are about to enroll will have a red check mark. If any of the previously enrolled fingerprints is selected again, the latest information will be enrolled and any previous information over-written.
8. At **Advanced Security** screen, select whether you wish to enable the security function, and then click **Next**.
9. At **Finalization** screen, click **Finish** - this will complete the fingerprint registration process.

## Windows Logon via Fingerprint Authentication

If required, you are also able to use fingerprint authentication in place of the usual Windows logon process using your username and password. This method is especially useful where there are many users using the same computer as it removes the need for actual user selection when the system is started.

### *Fingerprint Authentication Procedure*

1. Start up the computer.
2. At the **Logon Authorization** screen, choose any of the enrolled fingers and swipe the fingerprint on the sensor - if the authentication process is successful, the user will automatically be logged in to Windows.





*If the fingerprint authentication process fails you will need to log into Windows using the appropriate username and password. In addition, you should use this manual login process if fingerprint authentication fails for three consecutive tries - a warning message will be displayed when authentication is not normal or is not successful within a fixed duration.*

## Fingerprint Power-on Security

### General

The fingerprint authentication system can be used to replace the keyboard based password authentication system that is used when the computer is turned on.

If you do not want to use the fingerprint authentication system for password authentication when the computer is turned on, but instead prefer to use the keyboard entry method instead, simply press the **BACK SPACE** key when the Fingerprint Power-on Security screen is displayed. Using this process will switch the password input screen across to the keyboard based entry screen.



- *You must ensure that you use the TOSHIBA Password Utility to register a User Password before using the Fingerprint Power-on Security and its extended function to allow fingerprints to be used to access the computer when it is turned on.*
- *If the fingerprint authentication process fails five times, a preset time limit is exceeded, or you press the **BACK SPACE** key, [ Password = ] will be displayed on the screen and you will have to enter either the User Password or Supervisor Password manually in order to start the computer.*
- *When swiping your finger, please ensure that you do it slowly and at a constant speed. If you find that this does not improve the authentication rate, you should try to adjust the speed at which the finger is swiped.*
- *If there are any changes in the environment or settings related to authorization, you will be required to provide authorization information such as a User Password (and, if applicable, the HDD(Hard Disk Drive) password).*

### How to Enable Fingerprint Power-on Security Settings

It is necessary to first enroll your fingerprint with the Protector Suite QL application prior to enabling and configuring the Fingerprint Power-on Security System. You should check that your fingerprint is enrolled before configuring the settings (please refer to the Manual for Fingerprint Registration/Enrollment for further instructions).

1. Swipe your finger across the fingerprint sensor.
2. MENU will appear in the lower right corner of the screen. Swipe your finger on the fingerprint sensor and then select Control Center from the items presented in this menu.

3. At the **Fingerprint Software Management** screen, click **Settings** and then click **Power-on Security**.
4. At the **Power-on Security** screen, place a check mark in the Replace the power-on and hard disk drive passwords with the fingerprint sensor setting and then click **OK**.

## Fingerprint Single Sign-on Feature

### General

This is a feature that allows the user to complete the authentication for both the User/BIOS Password (and, if applicable, the HDD(Hard Disk Drive) Password) and logging onto Windows using only one fingerprint authentication when booting up. It is necessary to register the User/BIOS Password and Windows Logon Password before using the Fingerprint Power-on Security and this Fingerprint Single Sign-on Feature. Please use the TOSHIBA Password Utility to register your User/BIOS Password. If Windows Logon is not the default for your system, see Manual to register your Windows Logon Password.

Only one fingerprint authentication is required to replace the User/BIOS Password (and, if applicable, the HDD(Hard Disk Drive) Password) and the Windows Logon Password.

### How to Enable Fingerprint Single Sign-on Feature

It is necessary to first enroll your fingerprint with the Protector Suite QL application prior to enabling and configuring the Fingerprint Single Sign-on feature. You should check that your fingerprint is enrolled before configuring the settings (please refer to the Manual for Fingerprint Registration/Enrollment for further instructions).

1. Swipe your finger across the fingerprint sensor.
2. MENU will appear in the lower right corner of the screen. Swipe your finger on the fingerprint sensor and then select Control Center from the items presented in this menu.
3. At the **Fingerprint Software Management** screen, click **Settings** and then click **System Settings**.
4. At the **Protector Suite Settings** screen, place a check mark in the Allow power-on security single sign-on setting within Enable logon support and then click **OK**.

### Fingerprint utility limitations

TOSHIBA does not guarantee that the fingerprint utility technology will be completely secure or error-free, or that it will accurately screen out unauthorized users at all times. TOSHIBA is not liable for any failure or damage that might arise out of the use of the fingerprint software.



- *The fingerprint sensor compares and analyzes the unique characteristics in a fingerprint. However, there may be instances where certain users are unable to register their fingerprints due to insufficient unique characteristics in their fingerprints.*
- *The recognition success rate may differ from user to user.*

## Changing Ultra Slim Bay modules

This section explains how to change modules in the Ultra Slim Bay. The illustrations show replacement of the optical disc drive with the Ultra Slim Bay HDD Adaptor. Therefore, the text refers to those modules. However, the procedures are the same for any of the modules: DVD Super Multi drive and HDD adaptor.



*To avoid injury, do not put your hand into the Ultra Slim Bay slot.*

### Removing a module

Remove the optical disc drive as described below.

1. You can confirm that the disks are not operating with indicators. If all indicators are off, it means that no disks are operating currently.
2. Turn the computer upside down.

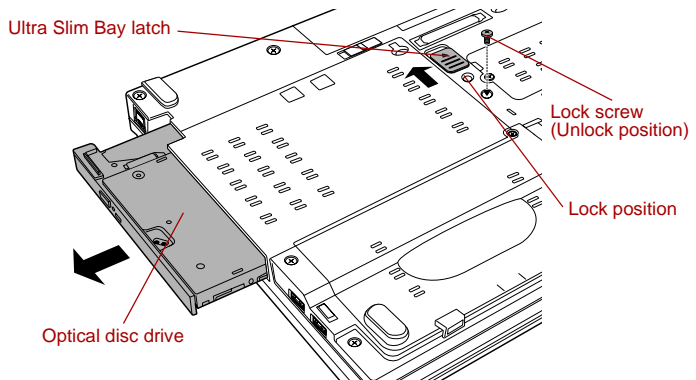


*Wait for all disk indicators to go out before you turn over the computer and do not lay the computer down gently. Shock can damage the HDD or other components.*

3. Remove the Ultra Slim Bay lock screw from the Lock position.
4. Set the Ultra Slim Bay lock screw in the Unlock position.
5. Slide the Ultra Slim Bay latch to the unlock position.
6. Grasp the optical disc drive and slide it out.



*The optical disc drive and other Ultra Slim Bay modules can become hot with use. Be careful when removing the module.*



*Figure 4-4 Removing the optical disc drive*

## Inserting a module

Insert the Ultra Slim Bay HDD Adaptor as described below.

1. Insert the Ultra Slim Bay HDD Adaptor in the computer as shown below and press until the ejector clicks.
2. Remove the Ultra Slim Bay lock screw from the Unlock position.
3. If you want to lock the Ultra Slim Bay HDD Adaptor, set the Ultra Slim Bay lock screw in the hole for the lock position.

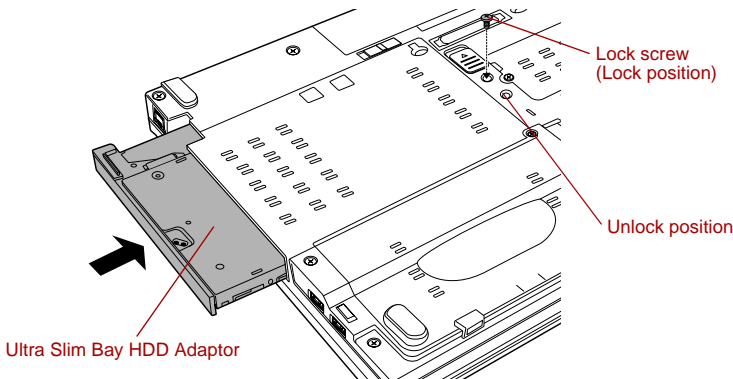


Figure 4-5 Inserting the Ultra Slim Bay HDD Adaptor

## Using optical disc drives

The full-size drive provides high-performance execution of CD/DVD-ROM-based programs. You can run either 12 cm (4.72") or 8 cm (3.15") CD/DVDs without an adaptor. An ATAPI interface controller is used for CD/DVD-ROM operation. When the computer is accessing a CD/DVD-ROM, an indicator on the drive glows.



*Use the WinDVD application to view DVD-Video discs.*

If you have a DVD Super Multi drive, refer also to the [Writing CD/DVDs on DVD Super Multi drives](#) section for precautions on writing to CDs/DVDs.



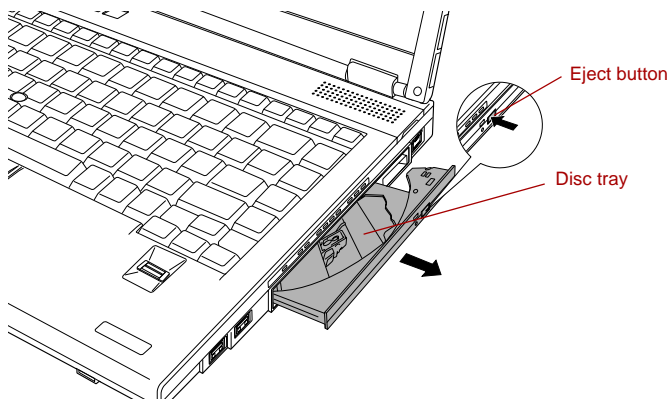
*When the power of the optical disc drive is off, pressing the **FN + Tab** keys will turn the power of the optical disc drive on. Furthermore, it is possible to set it to turn the power of the optical disc drive on and eject the tray at the same time.*

## Loading discs

To load CD/DVDs, follow the steps below.

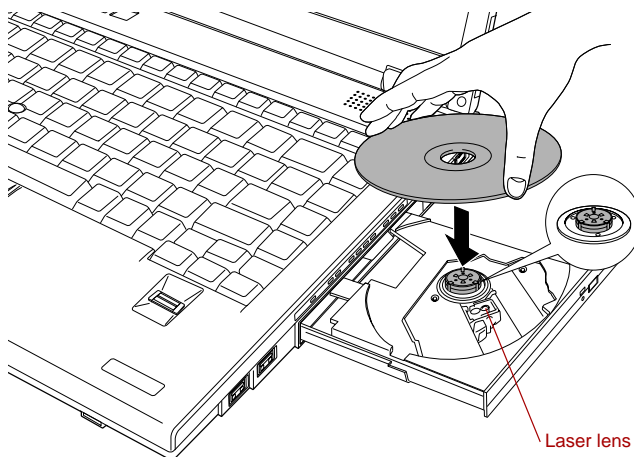
1. When the computer's power is on, press the eject button to open the disc tray slightly.

2. Grasp the disc tray gently and pull until it is fully opened.



*Figure 4-6 Pressing the eject button and pulling the disc tray open*

3. Lay the CD/DVD, label side up, in the disc tray.



*Figure 4-7 Inserting a CD/DVD*



When the disc tray is fully opened, the edge of the computer will extend slightly over the CD/DVD tray. Therefore, you will need to turn the CD/DVD at an angle when you place it in the disc tray. After seating the CD/DVD, however, make sure it lies flat.

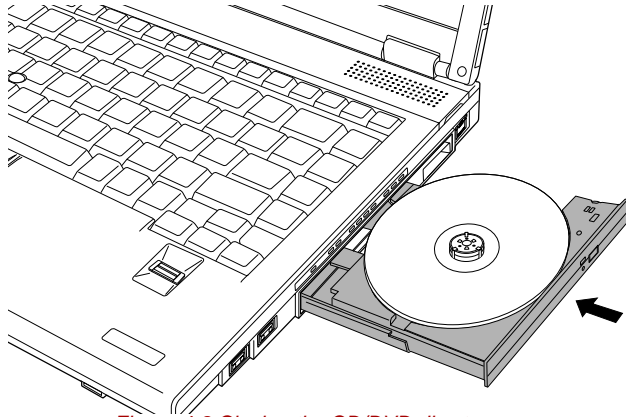


- Do not touch the laser lens or any portion of its surrounding casing as this could cause misalignment.
- Prevent foreign objects from entering the drive. Check the surface of the disc tray, especially the area behind the front edge of the disc tray, to make sure there are no such objects before closing the drive.

4. Press gently at the center of the CD/DVD until you feel it click into place. The CD/DVD should lie below the top of the spindle, flush with the spindle base.
5. Push the center of the disc tray to close it. Press gently until it locks into place.



*If the CD/DVD is not seated properly when the disc tray is closed, the CD/DVD might be damaged. Also, the disc tray might not open fully when you press the eject button.*



*Figure 4-8 Closing the CD/DVD disc tray*

## Removing discs

To remove the CD/DVD, follow the steps below.



*Do not press the eject button while the computer is accessing the media drive. Wait for the optical disc drive indicator to go out before you open the disc tray. Also, if the CD/DVD is spinning when you open the disc tray, wait for it to stop before you remove it.*

1. To pop the disc tray partially open, press the eject button. Gently pull the disc tray out until it is fully opened.



*When the disc tray pops open slightly, wait a moment to make sure the CD/DVD has stopped spinning before pulling the disc tray fully open.*

2. The CD/DVD extends slightly over the sides of the disc tray so you can grasp it. Gently lift out the CD/DVD.

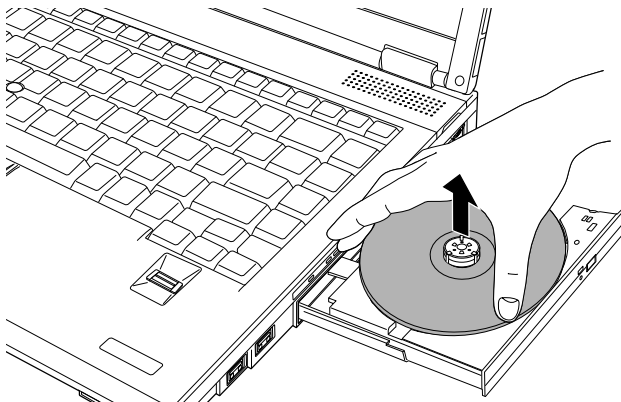


Figure 4-9 Removing a CD/DVD

3. Push the center of the disc tray to close it. Press gently until it locks into place.

### How to remove CD/DVD when the disc tray will not open

Pressing the eject button will not open the disc tray when the computer power is off. If the power is off, you can open the disc tray by inserting a slender object (about 15 mm) such as a straightened paper clip into the eject hole near the eject button.

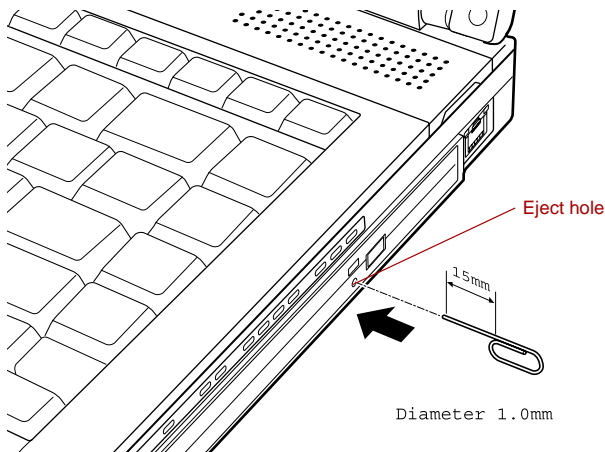


Figure 4-10 Manual release with the eject hole



Turn off the power before you use the eject hole. If the CD/DVD is spinning when you open the disc tray, the CD/DVD could fly off the spindle and cause injury.

## Writing CD/DVDs on DVD Super Multi drives

You can use the DVD Super Multi drive to write data to either CD-R, CD-RW, DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer), DVD+RW or DVD-RAM discs. The TOSHIBA Disc Creator is provided for writing.



- Please refer to the [Writable discs](#), Chapter 2 for details about the types of writable CD and DVD discs that can be supported by this computer.
- Do not turn off the power to the optical disc drive while the computer is accessing it as this may cause you to lose data.
- To write data to CD-R/-RW media, use the **TOSHIBA Disc Creator** feature that is installed on your computer.
- When the power of the optical disc drive is off, the disc tray will not open even if the eject button is pushed. Use the ODD to turn the power of the optical disc drive on. Please refer to Chapter 5, [Hot keys](#).



When writing information to media using an optical drive, you should always ensure that you connect the AC adaptor to a live power socket. It is possible that, if data is written while powered by the battery pack, the write process may sometimes fail due to low battery power - in these instances data loss may occur.

### Important message

Before you write or rewrite to any of the media supported by the DVD Super Multi Drive, please read and follow all of the setup and operating instructions in this section. If you fail to do so, you may find that the DVD Super Multi drive may not function properly, and you may fail to write or rewrite information successfully - this may cause you to either lose data or incur other damage to the drive or media.

### Legal Footnotes

TOSHIBA does not bear responsibility for the following:

- Damage to any CD-R, CD-RW, DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer), DVD+RW or DVD-RAM disc that may be caused by writing or rewriting with this product.
- Any change or loss of the recorded contents of CD-R, CD-RW, DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer), DVD+RW or DVD-RAM media that may be caused by writing or rewriting with this product, or for any business profit loss or business interruption that may be caused by the change or loss of the recorded contents.
- Damage that may be caused by using third party equipment or software.



Given the technological limitations of current optical disc writing drives, you may experience unexpected writing or rewriting errors due to disc quality or problems with hardware devices. In view of this, it is good practice to make two or more copies of important data, in case of any undesired change or loss of the recorded contents.

## Before writing or rewriting

- Based on TOSHIBA's limited compatibility testing, we suggest the following manufacturers of CD-R, CD-RW, DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer), DVD+RW or DVD-RAM media, however, it must be noted that disc quality can affect write or rewrite success rates. Please also be aware that in no event does TOSHIBA guarantee the operation, quality or performance of any disc.

---

### CD-R:

TAIYO YUDEN CO., LTD.  
MITSUBISHI CHEMICAL CORPORATION  
RICOH Co., Ltd.

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### CD-RW: (Multi-Speed and High-Speed)

MITSUBISHI CHEMICAL CORPORATION  
RICOH Co., Ltd.

---

### CD-RW: (Ultra-Speed)

MITSUBISHI CHEMICAL CORPORATION

---

### DVD-R:

**DVD Specifications for Recordable Disc for General Version 2.0**  
TAIYO YUDEN CO., LTD.  
Matsushita Electric Industrial Co., Ltd

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### DVD-R (Dual Layer):

MITSUBISHI CHEMICAL CORPORATION

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### DVD+R:

MITSUBISHI CHEMICAL CORPORATION  
RICOH Co., Ltd.

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### DVD+R (Double Layer): (Double Layer Recordable drive only)

MITSUBISHI CHEMICAL CORPORATION

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### DVD-RW:

**DVD Specifications for Recordable Disc for Version 1.1 or version 1.2**  
VICTOR COMPANY OF JAPAN.LIMITED  
MITSUBISHI CHEMICAL CORPORATION

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**DVD+RW:**

MITSUBISHI CHEMICAL CORPORATION  
RICOH Co., Ltd.

**DVD-RAM: (DVD Super Multi drive only)****DVD Specifications for DVD-RAM Disc for Version 2.0, Version 2.1 or Version 2.2**

Matsushita Electric Industrial Co., Ltd.  
Hitachi Maxell Ltd.



- *This drive cannot use discs that allow writing faster than 16x speed (DVD-R and DVD+R media), 8x speed (DVD-R (Dual Layer), DVD+RW and DVD+R (Double Layer) media), 6x speed (DVD-RW media), 5x speed (DVD-RAM media).*
- *Some types and formats of DVD-R (Dual Layer) and DVD+R (Double Layer) discs may be unreadable.*
- *2.6GB and 5.2GB DVD-RAM media cannot be read from or written to.*
- *DISC created in DVD-R (Dual Layer) format4 (Layer Jump Recording) cannot be read.*
- If the disc is poor in quality, or is dirty or damaged, writing or rewriting errors may be noted - ensure that you check all discs for dirt or damage before you use them.
- The actual number of rewrites to CD-RW, DVD-RW, DVD+RW or DVD-RAM media will be affected by the quality of the disc itself and the way in which it is used.
- There are two types of DVD-R media available, authoring discs and general use discs. Do not attempt to use authoring discs as only general use discs can be written to by a computer drive.
- You can use both DVD-RAM discs that can be removed from a cartridge and DVD-RAM discs designed without a cartridge.
- You may find that other computer DVD-ROM drives or other DVD players may not be able to read DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer) or DVD+RW discs.
- Data written to a CD-R, DVD-R, DVD-R (Dual Layer), DVD+R or DVD+R (Double Layer) discs cannot be deleted either in whole or in part.
- Data deleted/erased from a CD-RW, DVD-RW, DVD+RW or DVD-RAM disc cannot be recovered. You must check the content of the disc carefully before you delete it, taking care that, if multiple drives that can write data to discs are connected, you do not delete data from the wrong one.
- In writing to DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer), DVD+RW or DVD-RAM media, some space is required for file management, so you may not be able to write to the full capacity of the disc.

- Since the disc is based on the DVD standard, it might be filled with dummy data if the written data is less than about 1GB. Therefore, in these circumstance, even if you write only a small amount of data, it might take additional time to fill in the dummy data.
- When multiple drives that can write data to discs are connected, be sure that you do not write to or delete data from the wrong drive.
- Be sure to connect the AC adaptor to the computer before you write or rewrite any information.
- Before you enter either Sleep Mode or Hibernation Mode, take care to ensure that any DVD-RAM writing has been completed. In this instance, writing is finished if you can eject the DVD-RAM media.
- Be sure to close all other software programs except for the writing software itself.
- Do not run software such as a screen saver which can put a heavy load on the processor.
- Operate the computer at its full power settings - do not use any power-saving features.
- Do not write information while virus checking software is running, instead wait for it to finish, then disable the virus protection applications, including any software that checks files automatically in the background.
- Do not use any hard disk utilities, including those that are intended to enhance hard disk drive access speeds, as they may cause unstable operation and damage data.
- CD-RW (Ultra Speed +) media should not be used as data may be lost or damaged.
- You should always write from the computer's hard disk drive onto the CD/DVD - do not try to write from shared devices such as a server or any other network device.
- Writing with software other than TOSHIBA Disc Creator has not been confirmed, therefore operation with other software applications cannot be guaranteed.

## When writing or rewriting

Please observe the following points while you write or rewrite data to CD-R, CD-RW, DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer), DVD+RW or DVD-RAM media:

- Always copy data from the hard disk drive to the optical media - do not use the cut-and-paste function as the original data will be lost if there is a write error.
- Do not perform any of the following actions:
  - Change users in the Windows Vista™ operating system.
  - Operate the computer for any other function, including such tasks as using a mouse or Touch Pad, or closing/opening the display panel.
  - Start a communication application such as a modem.
  - Apply impact or vibration to the computer.

- Install, remove or connect external devices, including such items as a PC Card, SD/SDHC Card, USB device, external monitor, i.LINK device, or an optical digital device.
- Use the audio/video control button to reproduce music or voice.
- Open the optical disc drive.
- Do not use shut down, log off, Sleep Mode or Hibernation Mode functions while writing or rewriting.
- Make sure that the write/rewrite operation is completed before going into either Sleep Mode or Hibernation Mode (writing is completed if you can remove an optical media on the DVD Super Multi drive).
- If the media is of poor quality, or is dirty or damaged, writing or rewriting errors may occur.
- Set the computer on a level surface and avoid places subject to vibration such as airplanes, trains or cars. In addition, do not use the computer on an unstable surface such as a stand.
- Keep mobile phones and other wireless communication devices away from the computer.

## TOSHIBA Disc Creator


Please be aware of the following limitations when you use the TOSHIBA Disc Creator:

- DVD Video cannot be created using TOSHIBA Disc Creator.
- DVD Audio cannot be created using TOSHIBA Disc Creator.
- You cannot use TOSHIBA Disc Creator's 'Audio CD for Car or Home CD Player' function to record music to DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer) or DVD+RW media.
- Do not use the 'Disc Backup' function of TOSHIBA Disc Creator in order to copy DVD Video or DVD-ROM material that has copyright protection.
- DVD-RAM discs cannot be backed up using the 'Disc Backup' function of TOSHIBA Disc Creator.
- You cannot back up CD-ROM, CD-R or CD-RW media to DVD-R, DVD-R (Dual Layer) or DVD-RW media using the 'Disc Backup' function of TOSHIBA Disc Creator.
- You cannot back up CD-ROM, CD-R or CD-RW media to DVD+R, DVD+R (Double Layer) or DVD+RW media using the 'Disc Backup' function of TOSHIBA Disc Creator.
- You cannot back up DVD-ROM, DVD Video, DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer) or DVD+RW to CD-R or CD-RW media using the 'Disc Backup' function of TOSHIBA Disc Creator.
- TOSHIBA Disc Creator cannot record in packet format.

- You might not be able to use the 'Disc Backup' function of TOSHIBA Disc Creator to back up a DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer) or DVD+RW disc that was made with other software on a different optical media recorder.
- If you add data to a DVD-R, DVD-R (Dual Layer), DVD+R or DVD+R (Double Layer) disc that you have already recorded to, you might not be able to read the added data under some circumstances. For example, it cannot be read under 16-bit operating systems, such as Windows 98SE and Windows Me, while in Windows NT4 you will need Service Pack 6 or later, and in Windows 2000, you will need Service Pack 2. In addition to this, some DVD-ROM and DVD-ROM / CD-R/RW drives cannot read this added data regardless of the operating system.
- TOSHIBA Disc Creator does not support recording to DVD-RAM discs - to achieve this you should use Windows Explorer or another similar utility.
- When you back up a DVD disc, be sure that the source drive supports recording to DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer) or DVD+RW media - if this is not the case then the source disc might not be backed up correctly.
- When you back up a DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer) or DVD+RW disc, be sure to use the same type of disc.
- You cannot partially delete any data written to a CD-RW, DVD-RW or DVD+RW disc.

### ***Data Verification***

To verify that data has been written or rewritten correctly to a data CD/DVD you should follow the steps below before you begin the write/rewrite process:

1. Display the setting dialog box by one of the following two steps:
  - Click the setting button (  ) for writing on the main toolbar in the **Data CD/DVD** mode.
  - Select **Setting for writing** -> **Data CD/DVD** in the **Setting** menu.
2. Mark the **Verify written data** check box.
3. Select **File Open** or **Full Compare** mode.
4. Click the **OK** button.

### ***How to learn more about TOSHIBA Disc Creator***

Please refer to the Help files for additional TOSHIBA Disc Creator information.

## Media care

This section provides tips on protecting data stored on your CD's, DVD's and floppy diskettes. Handle your media with care. Following the simple precautions listed below will increase the lifetime of your media and protect the data stored on it.

### CD/DVDs

1. Store your CD's and DVD's in the containers they originally came in to protect them and keep them clean.
2. Do not bend the CD's or DVD's.
3. Do not write on, apply a sticker to, or otherwise mar the surface of the CD or DVD that contains the data.
4. Hold the CD or DVD by its outside edge or the edge on the center hole - any fingerprints on the surface of the disc can prevent the drive from properly reading data.
5. Do not expose the CD or DVD to direct sunlight, extreme heat or cold.
6. Do not place heavy objects on your CD's or DVD's.
7. If your CD's or DVD's become dusty or dirty, wipe them with a clean dry cloth from the center hole outwards - do not wipe in a circular direction. If necessary, you can use a cloth that has been lightly dampened in water or a neutral cleaner but you must not use benzine, thinner or any similar cleaning solution.

### Floppy diskettes



*The USB floppy diskette drive is available only as an option.*

1. Store your floppy diskettes in the container they came in to protect them and keep them clean. If a floppy diskette becomes dirty, clean it with a soft, lightly dampened cloth - do not use cleaning fluid.
2. Never open the shutter or touch the magnetic surface of your floppy diskette - doing this could permanently damage it and lose data.
3. Always handle floppy diskettes with care to prevent the loss of stored data.
4. Always apply the floppy diskette label in the correct location and never apply a new label on top of an existing one - in this instance the label could come loose and damage the floppy diskette drive.
5. Never use a pencil for writing on a floppy diskette label as the dust from the pencil lead could cause a system malfunction if it found its way onto the computer's components. In this instance, always use a felt-tipped pen and write the label first before applying it to the floppy diskette.
6. Never put a floppy diskette in a location where water or other liquid may make contact with it, or where it is excessively damp - either of these conditions could cause data loss.
7. Never use a wet or damp floppy diskette - this could damage the floppy diskette drive or other devices within the computer.

8. Data may be lost if the floppy diskette is twisted, bent, or exposed to direct sunlight, extreme heat or cold.
9. Do not place heavy objects on your floppy diskettes.
10. Do not eat, smoke, or use items such as erasers near your floppy diskettes as foreign particles inside the jacket of the floppy diskette can damage the magnetic surface.
11. Magnetic energy can destroy the data on your floppy diskettes. In view of this you should keep your floppy diskettes away from speakers, radios, televisions and other sources of magnetic fields.

## Sound System

This section describes some of the audio control functions.

### Volume Mixer

The Volume Mixer utility lets you control the audio volume for playback of devices and applications under Windows.

- To launch the Volume Mixer utility, right click on the speaker icon on the taskbar, and select **Open Volume Mixer** from the sub menu.
- To adjust the volume level of speakers or headphones, move the **Speakers** slider.
- To adjust the volume level of an application that you are using, move the slider for the corresponding application.

### Microphone Level

Follow the steps below to change the microphone recording level.

1. Right click on the speaker icon on the taskbar, and select **Recording Devices** from the sub menu.
2. Select **Microphone**, and click **Properties**.
3. On the **Levels** tab move the **Microphone** slider to increase or decrease the microphone volume level.

If you feel the microphone volume level is inadequate, move the **Microphone Boost** slider to a higher level.

### PC Beep Level

Follow the steps below to change the PC Beep playback level.

1. Right click on the speaker icon on the taskbar, and select **Playback Devices** in the sub menu.
2. Select **Speakers**, and click **Properties**.
3. On the **Levels** tab move the **PC Beep** slider to increase or decrease the PC Beep volume level.

## Audio Enhancements

In order to apply the sound effects for your current speaker, follow the steps below.


1. Right click on the speaker icon on the taskbar, and select **Playback Devices** from the sub menu.
2. Select **Speakers**, and click **Properties**.
3. On the **Enhancement** tab select the sound effects you would like, and click **Apply**.

## Realtek HD Audio Manager

You can confirm and change the audio configuration using the **Realtek Audio Manager**. To launch the **Realtek Audio Manager**, click **Start -> Control Panel -> Hardware and Sound -> Realtek HD Audio Manager**.


When you first launch the Realtek Audio Manager, you will see two device tabs. **Speakers** is the default output device. **Microphone** is the default input device. To change the default device, click the **Set Default Device** button under the chosen device tab.

### Information

Click the **information button**  to view hardware information, software information, and language setting.


### Power Management

The audio controller in your computer can be turned off when the audio function is not used. To adjust the configuration of audio power

management, click the **battery button** .

- When audio power management is enabled, the circle button at the upper left of the Power Management is blue and convex.
- When audio power management is disabled, the button is black and concave.

### Speaker Configuration

Click the **playback button**  to confirm the internal speakers or the headphone sound is coming from the right direction.

### Default Format

You can change the sample rate and bit depth of sound.



## TOSHIBA Mic Effect

**TOSHIBA Mic Effect** provides you with a hands-free environment for holding mutual communication via the Internet Protocol or Local Area Network. If you wish to communicate with someone on your computer, you can use a messenger application. However, with such an application, you would hear your own voice returning to you as echo during the communication if you did not use a headset system or headphone. TOSHIBA Mic Effect will reduce these echoes generated on your computer.

To apply the echo cancellation, follow the steps below.

1. Click the right button of a mouse on the speaker icon on the taskbar, and select **Playback Devices** in the sub menu.
2. On the **Playback** tab, select **Speakers**, and click **Properties**.
3. On the **Advanced** tab, select “**16 bit, 48000 Hz (DVD Quality)**” in the pull-down menu of Default Format, and then click **OK**.
4. On the **Recording** tab, select **Microphone**, and click **Properties**.
5. On the **Advanced** tab, select “**2 channel, 16 bit, 48000 Hz (DVD Quality)**” in the pull-down menu of the Default Format pane.
6. On the **TOSHIBA Mic Effect** tab, select the **Enable Echo Canceller** check box, and click **Apply**.

## Modem

This section describes how to connect and disconnect the internal modem to and from a telephone jack.

Click the icon with the secondary mouse button to display the properties menu on the screen.



- *Connection to any communication line other than an analog phone line could cause a computer system failure.*
  - *Connect the built-in modem only to ordinary analog phone lines.*
  - *Never connect the built-in modem to a digital line (ISDN).*
  - *Never connect the built-in modem to the digital connector on a public telephone or to a digital private branch exchange (PBX).*
  - *Never connect the built-in modem to a key telephone system for residences or offices.*
- *Never operate your computer on AC power during a thunderstorm. If you see lightning or hear thunder, immediately turn off the computer. An electric surge caused by the storm, may result in a system failure, loss of data or hardware damage.*
- *Modem functions cannot be used in models which are not equipped with a modem.*

## Region selection

Telecommunication regulations vary from one region to another, so you will need to make sure the internal modem's settings are correct for the region in which it will be used.



*The built-in modem can be used only in specified countries and regions. Using the modem in an area not specified for use may cause a system failure. Check the specified areas carefully before using it.*

To select a region, follow the steps as detailed below:

1. Click **Start -> All Programs -> TOSHIBA -> Networking -> Modem Region Select**.



*If it is available, do not use the Country/Region Select function included as part of the modem setup utility within the Control Panel - if you change the country/region setting this way you may find that the change does not take effect.*

2. The Region Selection icon will appear in the Windows Task Bar.
3. Click the icon with the primary (left) mouse button to display a list of regions that the modem supports, together with a sub-menu which details telephony location information - a check mark will appear next to the currently selected region and telephony location.
4. Select either a region from the region menu or a telephony location from the sub-menu.
  - When you click a region it becomes the modem's default selection for any new dialling locations that are created within the Windows Control Panel (Phone and Modem Options).
  - When you select a telephony location, the corresponding region is automatically selected and becomes the modem's default setting.

## Properties menu

Click the icon with the secondary (right) mouse button in order to display a Properties menu on the screen.

## Setting

Within the Properties menu you can are able to either enable or disable the following settings:

### ***AutoRun Mode***

Allows you to configure whether the Modem Region Select utility starts automatically whenever you start up the operating system.

### ***Open the Dialing Properties dialog box after selecting region.***

Allows you to configure whether the dialing properties dialog box will be displayed automatically after you have selected a region.

### **Location list for region selection.**

Displays a sub-menu appears which details location information.

### **Open dialog box, if the modem and Telephony Current Location region code do not match.**

Displays a warning if the current settings for both region code and telephony location are different.

## **Modem Selection**

If the computer cannot recognize the internal modem, a dialog box is displayed from which you should select the appropriate communications port for your modem to use.

## **Dialing Properties**

You should select this item in order to display the dialing properties.



*If you are using the computer in Japan, the Telecommunications Business Law requires that you select Japan region mode. It is illegal to use the modem in Japan with any other selection.*

## **Connecting the modular cable**

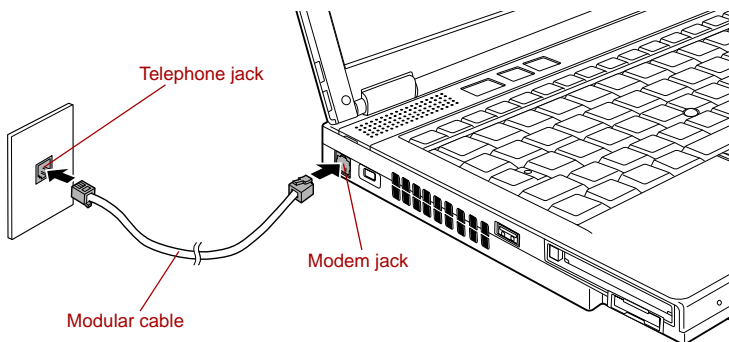
To connect the modem's modular cable, follow the steps as detailed below:



- *Connection to any communication line other than an analog phone line could cause a computer system failure.*
  - *Connect the built-in modem only to ordinary analog phone lines.*
  - *Never connect the built-in modem to a digital line (ISDN).*
  - *Never connect the built-in modem to the digital connector on a public telephone or to a digital private branch exchange (PBX).*
  - *Never connect the built-in modem to a key telephone system for residences or offices.*
- *Never operate your computer on AC power during a thunderstorm. If you see lightning or hear thunder, immediately turn off the computer. An electric surge caused by the storm, may result in a system failure, loss of data or hardware damage.*

1. Plug the end of the modular cable into the computer's modem jack.

2. Plug the other end of the modular cable into a telephone jack.



*Figure 4-11 Connecting the internal modem*



*Do not pull on the cable or move the computer while the cable is connected.*



*If you use a storage device such as an optical disc drive or hard disk drive connected to a 16-bit PC Card, you might experience the following problems with the operation of the modem:*

- *The modem speed is slow or communication is periodically interrupted.*
- *Skips or jumps may be noted in sound.*

## Disconnecting the modular cable

To disconnect the internal modular cable, follow the steps as detailed below:

1. Pinch the lever on the plug in the telephone jack and pull it out from within the connector.
2. Pinch the lever on the plug in the computer's modem jack and pull it out from within the computer.

## Wireless communications

The computer's wireless communication function supports both Wireless LAN and Bluetooth devices.

Only some models are equipped with both Wireless LAN and Bluetooth functions.



- *Do not use the Wireless LAN (Wi-Fi) or Bluetooth functionalities near a microwave oven or in areas subject to radio interference or magnetic fields. Interference from a microwave oven or other source can disrupt Wi-Fi or Bluetooth operation.*
- *Turn Wi-Fi and Bluetooth functionalities off when near a person who may have a cardiac pacemaker implant or other medical electric device. Radio waves may affect pacemaker or medical device operation, possibly resulting in serious injury. Follow the instruction of your medical device when using any Wi-Fi or Bluetooth functionality.*
- *Always turn off Wi-Fi or Bluetooth functionality if the computer is near automatic control equipment or appliances such as automatic doors or fire detectors. Radio waves can cause malfunction of such equipment, possibly resulting in serious injury.*
- *It may not be possible to make a network connection to a specified network name using the ad hoc network function. If this occurs, the new network(\*) will have to be configured for all computers connected to the same network in order to re-enable network connections.*  
\* Please be sure to use new network name.

## Wireless LAN

The Wireless LAN is compatible with other LAN systems based on Direct Sequence Spread Spectrum / Orthogonal Frequency Division Multiplexing radio technology that complies with the IEEE802.11 Wireless LAN standard (Revision A, B, G or N Draft Ver. 1.0).



*Do not install or remove a memory module while Wake-up on Wireless LAN is enabled.*



- *The Wake-up on Wireless LAN function consumes power even when the system is off. Leave the AC adaptor connected while using this feature.*
- *The Wake-up on Wireless LAN function is effective only when it is connected with an Access Point. This function becomes invalid when the connection is broken.*
- Frequency Channel Selection of 5GHz for IEEE 802.11a or 2.4GHz for 802.11b/g
- Roaming over multiple channels
- Card power management

- Wired Equivalent Privacy (WEP) data encryption based on an 128-bit encryption algorithm
- Wi-Fi Protected Access (WPA)



*The transmission speed over the wireless LAN, and the distance over which the wireless LAN can reach, may vary depending on surrounding electromagnetic environment, obstacles, access point design and configuration, client design and software/hardware configurations. The transmission rate described is the theoretical maximum speed as specified under the appropriate standard - the actual transmission speed will be lower than the theoretical maximum speed.*

### Setting

1. Please make sure that the **Wireless Communication Switch** is turned on.
2. Click **Start** and then click **Connect to** to display **Connect to a network** window.
3. Click **Set up a connection or network**.
4. Follow the wizard. You will need the name of the wireless network together with security settings. Consult the documentation accompanied with your router or ask your wireless network administrator for the settings.

### Security

- TOSHIBA strongly recommend that you enable encryption functionality, otherwise your computer will be open to illegal access by an outsider using a wireless connection. If this occurs, the outsider may illegally access your system, eavesdrop, or cause the loss or destruction of stored data.
- TOSHIBA is not liable for the loss of data due to eavesdropping or illegal access through the wireless LAN and the damage thereof.

## Bluetooth wireless technology

Bluetooth® wireless technology eliminates the need for cables between electronic devices such as desktop computers, printers and mobile phones. You cannot use the computer's built-in Bluetooth functions and an optional Bluetooth devices simultaneously. For reference, Bluetooth wireless technology has the following features:

### Worldwide operation

The Bluetooth radio transmitter and receiver operate in the 2.4GHz band, which is license-free and compatible with radio systems in most countries in the world.

## Radio links

You can easily establish links between two or more devices, with these links being maintained even if the devices are not within a line-of-sight of each other.

## Security

Two advanced security mechanisms ensure a high level of security:

- Authentication prevents access to critical data and makes it impossible to falsify the origin of a message.
- Encryption prevents eavesdropping and maintains link privacy.

## Bluetooth® Stack for Windows® by TOSHIBA

Please note that this software is specifically designed for the following operating systems:

- Microsoft® Windows Vista™

Information regarding the use of this software with these operating systems is listed below, with further details being contained with the electronic help files supplied with the software.



*This Bluetooth® Stack is based on the Bluetooth® Version 1.1/1.2/2.0+EDR specification. However, TOSHIBA cannot confirm the compatibility between any computing products and/or other electronic devices that use Bluetooth®, other than TOSHIBA notebook computers.*

## Release Notes related to the Bluetooth® Stack for Windows® by TOSHIBA

1. Fax application software:  
Please be aware that there is some fax application software that you cannot use on this Bluetooth® Stack.
2. Multi-user considerations:  
On Windows Vista™, the use of Bluetooth is not supported in a multi-user environment. This means that, when you use Bluetooth, other users that are logged into the same computer will not be able to use this type of functionality.

## Product Support:

The latest information regarding operating system support, language support or available upgrades can be found on our web site <http://www.toshiba-europe.com/computers/tnt/bluetooth.htm> in Europe or [www.pcsupport.toshiba.com](http://www.pcsupport.toshiba.com) in the United States.

## Wireless communication switch

You can enable or disable Wireless communication (Wireless LAN and Bluetooth) functions, with the on/off switch. No transmissions are sent or received when the switch is off. Slide the switch to the right to turn it on and to the left to turn it off.

## Wireless communication Indicator

The wireless communication indicator shows the status of the computer's wireless communication functions.

Indicator status	Indication
Indicator off	The wireless communication switch is off - no wireless functionality is available.
Indicator glows	Wireless communication switch is on. Wireless LAN or Bluetooth is turned on by an application.

If you used the Task Bar to disable the wireless LAN, restart the computer or perform the following procedure to re-enable it: **Start, Control Panel, System and Maintenance, System, Device Manager, Network adapters, the wireless device** and **enable**.

## LAN

The computer has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T), Fast Ethernet LAN (100 megabits per second, 100BASE-TX) and Gigabit Ethernet LAN (1000 megabits per second, 1000BASE-T).

This section describes how to connect/disconnect to a LAN.



*Do not install or remove a memory module while Wake-up on LAN is enabled.*



- *The Wake-up on LAN function consumes power even when the system is off. Leave the AC adaptor connected while using this feature.*
- *The Link speed (10/100/1000 megabits per second) changes automatically depending on the network conditions (connected device, cable or noise and so on).*

## LAN cable types



*The computer must be configured properly before connecting to a LAN. Logging onto a LAN using the computer's default settings could cause a malfunction in LAN operation. Check with your LAN administrator regarding set-up procedures.*

If you are using Gigabit Ethernet LAN (1000 megabits per second, 1000BASE-T), be sure to connect with a CAT5E cable or higher. You cannot use a CAT3 or CAT5 cable.

If you are using Fast Ethernet LAN (100 megabits per second, 100BASE-TX), be sure to connect with a CAT5 cable or higher. You cannot use a CAT3 cable.

If you are using Ethernet LAN (10 megabits per second, 10BASE-T), you can connect with a CAT3 or higher cable



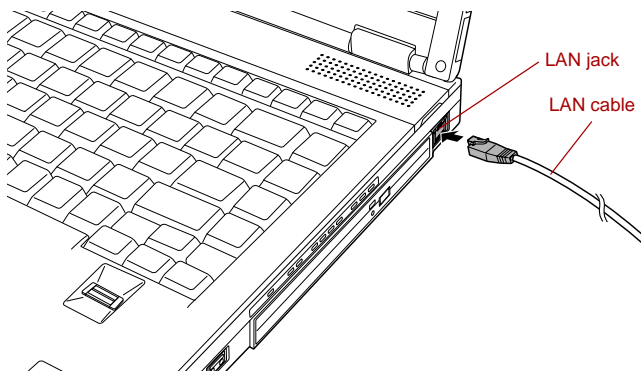
## Connecting the LAN cable

To connect the LAN cable, follow the steps as detailed below:



- *Connect the AC adaptor before connecting the LAN cable. The AC adaptor must remain connected during LAN use. If you disconnect the AC Adaptor while the computer is accessing a LAN, the system may hang up.*
- *Do not connect any other cable to the LAN jack except the LAN cable. Otherwise, malfunctions or damage may occur.*
- *Do not connect any power supplying device to the LAN cable that is connected to the LAN jack. Otherwise, malfunctions or damage may occur.*

1. Turn off the power to the computer and to all external devices connected to the computer.
2. Plug one end of the cable into the LAN jack. Press gently until you hear the latch click into place.



*Figure 4-12 Connecting the LAN cable*

3. Plug the other end of the cable into a LAN hub connector or router. Check with your LAN administrator and hardware or software vendor before using or configuring a network connection.



*When the computer is exchanging data with the LAN, the **LAN Active** indicator glows orange. When the computer is connected to a LAN hub but is not exchanging data, the **Link** indicator glows green.*

## Disconnecting the LAN cable

To disconnect the LAN cable, follow the steps as detailed below:



*Make sure the **LAN Active** indicator (orange LED) is out before you disconnect the computer from the LAN.*

1. Pinch the lever on the connector in the computer's LAN jack and pull out the connector.
2. Disconnect the cable from the LAN hub or router in the same manner. Check with your LAN administrator and hardware or software vendor before disconnecting from the hub.

## Computer Handling

This section explains computer handling and maintenance.

### Cleaning the computer

To help ensure long, trouble-free operation, keep the computer free of dust and dirt, and use care with all liquids around it.

- Be careful not to spill liquids into the computer. If the computer does get wet, turn the power off immediately and let the computer dry completely - in these circumstance you should get the computer inspected by an authorized service provider in order to assess the scope of any damage.
- Clean the plastics of the computer using a slightly water dampened cloth.
- You can clean the display screen by spraying a small amount of glass cleaner onto a soft, clean cloth and then wiping the screen gently with the cloth.



*Never spray cleaner directly onto the computer or let liquid run into any part of it. Never use harsh or caustic chemical products to clean the computer.*

### Moving the computer

While the computer is designed for rugged durability you should exercise a few simple precautions when moving it in order to help ensure trouble-free operation.

- Before moving the computer, it is recommended that you change the setting associated with the Hard Disk Drive Protection feature. Please refer to the section, [Using the Hard Disk Drive \(HDD\) Protection](#), in this chapter for further information.
- Make sure all disk/disc activity has ended before moving the computer - check that the HDD and other indicators on the front of the computer are off.
- Turn off (shut down) the computer.

- Disconnect the AC adaptor and all peripherals before moving the computer.
- Close the display panel.
- Do not pick up the computer by its display panel.
- Before carrying your computer, shut it down, disconnect the AC adaptor and allow it to cool down - a failure to follow this instruction may result in minor heat injury.
- Be careful not to subject the computer to impact or shock - a failure to follow this instruction could result in damage to computer, computer failure or loss of data.
- Never transport your computer with any cards installed - this may cause damage to either the computer and/or the card resulting in product failure.
- Always use a suitable carry case when transporting the computer.
- When carrying your computer, be sure to hold it securely so that it does not fall or hit anything.
- Do not carry your computer by holding any of its protruding elements.

## Using the Hard Disk Drive (HDD) Protection

This computer has a function for reducing the risk of damage on the hard disk drive.




Using an acceleration sensor built into the computer, TOSHIBA HDD Protection detects vibration shocks and similar signs of movement of the computer, and automatically moves the Hard Disk Drive head to a safe position to reduce the risk of damage that could be caused by head-to-disk contact.



- *This function does not guarantee that the hard disk drive will not be damaged.*
- *The secondary hard disk drive is not supported by the TOSHIBA HDD protection function.*

When vibration is detected, a message will be displayed on the screen, and the icon in the taskbar notification area will change to the protection state. This message is displayed until the **OK** button is pressed or 30 seconds pass. When vibration subsides, the icon returns to the normal state.

## Taskbar Icon

State	Icon	Description
Normal		TOSHIBA HDD Protection is enabled.
Protection		TOSHIBA HDD Protection is active. The hard disk drive head is in a safe position.
OFF		TOSHIBA HDD Protection is disabled.

## TOSHIBA HDD Protection Properties

You can change the TOSHIBA HDD Protection settings by using the TOSHIBA HDD Protection Properties window. To open the window, click **Start -> All Programs -> TOSHIBA -> Utilities -> HDD Protection Setting**. The window can also be started from the icon on the Taskbar or from the **Control Panel**.

### HDD Protection

You can choose whether to enable or disable TOSHIBA HDD Protection.

### Detection Level

This function can be set to four levels. The sensitivity levels in which vibrations, impacts and their similar signs are detected can be set to OFF, 1, 2 and 3 in ascending order. Level 3 is recommended for better protection of the computer. However, when the computer is used in a mobile environment or in other unstable conditions, setting the detection level to 3 could result in frequent execution of TOSHIBA HDD Protection, which will slow Hard Disk Drive reading and writing. Set a lower detection level when the speed of Hard Disk Drive reading and writing is a priority.

Different detection levels can be set depending on whether the computer is used as handheld or mobile usages, or whether it is used in a stable environment such as on a table in the workplace or at home. By setting different detection levels for the computer depending on whether it runs with the AC power (desktop) or with batteries (handheld or mobile usage), the detection level automatically switches according to the power connection mode.

### 3D Viewer

This feature displays a 3D object on the screen which moves in according to tilting or vibration of the computer.

When the TOSHIBA HDD Protection detects computer vibration the Hard Disk Drive head is parked and the 3D object disk rotation will stop. When the head is un-parked the disk will begin to rotate again.

The **3D Viewer** can be started from the icon in the task tray.



- *This 3D object virtually represents the Computer's internal Hard Disk Drive. This representation may vary from the actual number of disks, disk rotation, head movement, part size, shape and direction.*
- *This feature may use a large amount of CPU and memory on some models. The computer may become slow or sluggish when attempting to run other applications while the 3D Viewer is displayed.*
- *Intensely shaking the computer or other subjecting it to strong impacts may cause damage to the computer.*

## Details

To open the Details window, click the **Setup Detail** button in the TOSHIBA HDD Protection Properties window.

### **Detection Level Amplification**

When the AC adaptor is disconnected or the lid is closed, HDD Detection assumes that the computer will be carried and sets the detection level to the maximum for 10 seconds.

### **TOSHIBA HDD Protection Message**

Specify whether to display a message when TOSHIBA HDD Protection is active.



- *This function does not work when the computer is starting, in Sleep Mode, in Hibernation Mode, in transition to Hibernation Mode, recovering from Hibernation Mode, or powered off. Be sure to not subject the computer to vibration or impact while the function is disabled.*
- *This function only operates with Windows Vista™.*

## Heat dispersal

To protect against overheating, the processor is equipped an internal temperature sensor which activates a cooling fan or lowers the processing speed if the computer's internal temperature rises to a certain level. You are able to select whether to control this temperature by either turning on the fan first, then if necessary lowering the processor speed, or by lowering the processor speed first, then if necessary turning on the fan - these functions are controlled within the Power Options.

When the processor's temperature falls to a normal range, the fan will be turned off and the processor operation returned to its standard speed.



- *If the processor's temperature reaches an unacceptably high level with either setting, the computer will automatically shuts down to prevent any damage - in this instance all unsaved data in memory will be lost.*

# Chapter 5

## The Keyboard

The computer's keyboard layouts are compatible with a 104/105-key enhanced keyboard - by pressing some keys in combination, all of the 104/105-key enhanced keyboard functions can be performed on the computer.

The number of keys available on your keyboard will depend on which country/region your computer is configured for, with keyboards being available for numerous languages.

In use there are six different types of keys, specifically typewriter keys, function keys, soft keys, Hot keys, Windows special keys and the keypad overlay.

### Typewriter keys

The typewriter keys produce the upper-case and lower-case letters, numbers, punctuation marks, and special symbols that appear on the screen. However, there are some differences between using a typewriter and using a computer keyboard:

- Letters and numbers produced in computer text vary in width. Spaces, which are created by a 'space character' may also vary depending on line justification and other factors.
- The lowercase l (el) and the number 1 (one), together with the uppercase O (oh) and the 0 (zero), are not interchangeable on computers as they are on a typewriter.
- The **CAPS LOCK** function key locks only the alphabetic characters into upper-case while the Shift Lock function on a typewriter places all keys in the shifted position.
- The **SHIFT** keys, the **Tab** key, and the **BACK SPACE** key perform the same function as their typewriter counterparts but also have special computer functions.



*Never remove the key caps on your keyboard. Doing so could cause damage to the parts under the key caps.*

## Function keys: F1 ... F12

The function keys (not to be confused with the special **FN** key) are the twelve keys at the top of your keyboard - these keys function differently from other keys.



**F1** through **F12** are called function keys because they execute programmed functions when pressed and, when used in combination with the **FN** key, those keys marked with icons also execute specific functions on the computer. Please refer to the section, [Soft keys: FN key combinations](#), in this chapter for further information, taking care to note that the function executed by individual keys will depend on the software you are using.

## Soft keys: FN key combinations

The **FN** (function) is unique to TOSHIBA computers and is used in combination with other keys to form soft keys. Soft keys are key combinations that enable, disable or configure specific features.



*Please note that some software may disable or interfere with soft-key operations, and that the soft-key settings are not restored when the computer returns from Sleep Mode.*

## Emulating keys on an enhanced keyboard

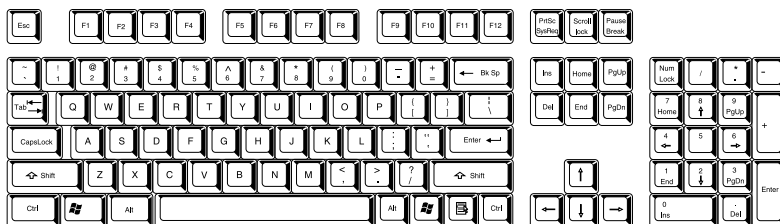
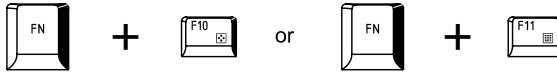


Figure 5-1 A 104-key enhanced keyboard layout

This computer's keyboard is designed to provide all the features of the 104-key enhanced keyboard.

Since the keyboard is smaller and has fewer keys, some of the enhanced keyboard functions must be simulated using two keys instead of one on the larger keyboard.

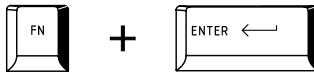
The **FN** key can be combined with the following keys to simulate functions similar to those of keys on the 104/105 key enhanced keyboard which are not on this computer's keyboard.



Press **FN + F10** or **FN + F11** to access the computer's integrated keypad. When activated, the keys with grey markings on their bottom edge become either numeric keypad keys (**FN + F11**) or cursor control keys (**FN + F10**). Please refer to the [Keypad overlay](#) section in this chapter for more information on how to operate these keys, taking care to note that the power on default for both settings is off.



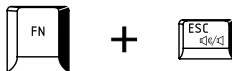
Press **FN + F12 (ScrLock)** to lock the cursor on a specific line. The power on default is off.



Press **FN + ENTER** to simulate **ENTER** on the enhanced keyboard's numeric keypad.

## Hot keys

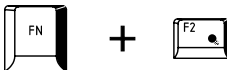
Hot keys (pressing **FN** + a function or **ESC** key) let you enable or disable certain features of the computer.



**Mute:** Pressing **Fn + ESC** turns the volume on and off.

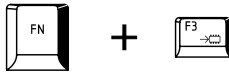


**Lock:** Pressing **FN + F1** enters "Lock computer mode". To restore your desktop, you need to log on again.



**Power Plan:** Pressing **FN + F2** changes the power settings.





**Sleep:** Pressing **FN + F3** switches the system to Sleep mode.



**Hibernate:** Pressing **FN + F4** switches the system to Hibernate mode.



**Output:** Pressing **FN + F5** changes the active display device.



**Brightness Down:** Pressing **FN + F6** decreases the computer's display panel brightness in individual steps.



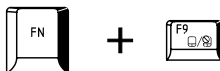
**Brightness Up:** Pressing **FN + F7** increases the computer's display panel brightness in individual steps.



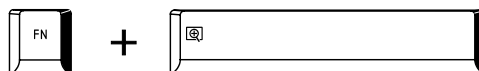
**Wireless:** Pressing **FN + F8** switches the active wireless devices if the wireless communication switch is switched on.



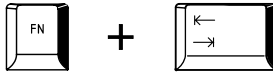
*If no wireless communication device is installed, no dialog box will appear.*



**Touch Pad:** Pressing **FN + F9** enables or disables the Touch Pad and AccuPoint function.



**Zoom:** Pressing **FN + Space** changes the display resolution.



**ODD:** Pressing **FN + Tab** turns the power of the optical disc drive on/off or ejects the disc tray.



**TOSHIBA Zooming Utility (reduce):** Pressing **FN + 1** reduces the icon size on the desktop or the font sizes within one of the supported application windows.



**TOSHIBA Zooming Utility (enlarge):** Pressing **FN + 2** enlarges the icon size on the desktop or the font sizes within one of the supported application windows.

## Fn Sticky key

You can use the TOSHIBA Accessibility Utility to make the **FN** key sticky, that is, you can press it once, release it, and then press an "**F Number**" key. To start the TOSHIBA Accessibility utility, click **Start -> All Programs -> TOSHIBA -> Utilities -> Accessibility**.

## Windows special keys

The keyboard provides two keys that have special functions in Windows, the Windows Start Button key activates the **Start** menu while the application key has the same function as the secondary (right) mouse button.



This key activates the Windows **Start** menu.



This key has the same function as the secondary (right) mouse button.

## Keypad overlay

Your computer's keyboard does not have a separate numeric keypad but includes a numeric keypad overlay which functions like one - this is located in the center of the keyboard with the relevant keys having grey letters at their front edge. The overlay provides the same functions as the numeric keypad on a standard 104/105-key enhanced keyboard.

### Turning on the overlays

The numeric keypad overlay can be used for numeric data input or cursor and page control.

#### Arrow mode

To turn on Arrow Mode, press **FN + F10** - the Arrow mode indicator lights and you are able to access cursor and page control functions by using the keys. You are able to press **FN + F10** again to turn off this overlay function.

#### Numeric mode

To turn on Numeric Mode, press **FN + F11** - the Numeric Mode indicator lights and you are able to access numeric characters by using the keys. You are able to press **FN + F11** again to turn off this overlay function.

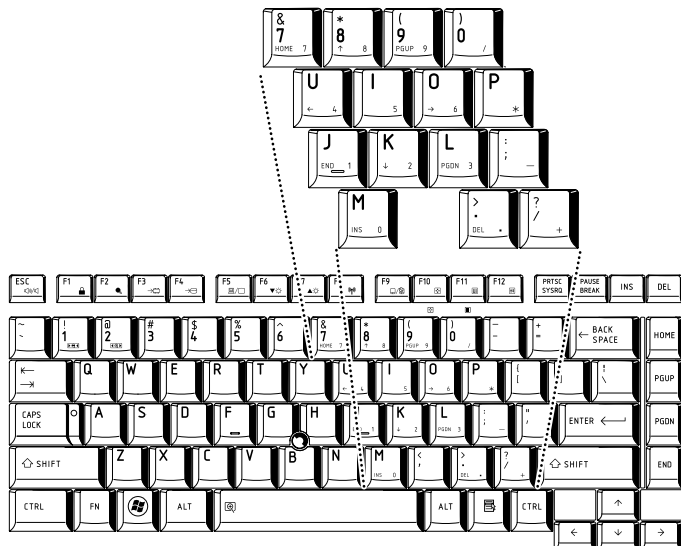


Figure 5-2 The numeric keypad overlay

## Temporarily using normal keyboard (overlay on)

While using the overlay, you can temporarily access the normal keyboard functions without having to turn the overlay off:

1. Hold down **FN** key and press any other key - this key will operate as if the overlay were off.
2. Type upper-case characters by holding down **FN + SHIFT** and pressing a character key.
3. Release **FN** key to continue using the selected overlay function.

## Temporarily using overlay (overlay off)

While using the normal keyboard function, you can temporarily use the keypad overlay without having to turn it on:

1. Hold down **FN** key.
2. Check the keyboard indicators as pressing the **FN** key will turn on the most recently used overlay function - if the Numeric Mode indicator lights you can use the overlay for numeric entry, while if the Arrow Mode indicator lights, you can use the overlay for cursor and page control function.
3. Release **FN** key to return to normal keyboard operation.

## Temporarily changing modes

If the computer is in **Numeric Mode**, you can switch temporarily to **Arrow Mode** by pressing a **SHIFT** key, while if it is in **Arrow Mode**, you can switch temporarily to **Numeric Mode** by also pressing a **SHIFT** key.

## Generating ASCII characters

Not all ASCII characters can be generated using normal keyboard operation, but you are able to generate these characters using their specific ASCII codes.

With the overlay on:

1. Hold down **ALT** key.
2. Using the overlay keys, type the ASCII code of the character you require.
3. Release **ALT** - the ASCII character will appear on the display screen.

With the overlay off:

1. Hold down **ALT + FN**.
2. Using the overlay keys, type the ASCII code of the character you require.
3. Release **ALT + FN** - the ASCII character will appear on the display screen.

# Chapter 6

## Power and Power-Up Modes

The computer's power resources include the AC adaptor, battery pack and any internal batteries. This chapter provides details on making the most effective use of these resources, and includes information on charging and changing batteries, tips for saving battery power, and information on the different power-up modes.

### Power conditions

The computer's operating capability and battery charge status are affected by different power conditions, including whether an AC adaptor is connected, whether a battery pack is installed and what the charge level is for that battery.

*Table 6-1 Power conditions*

		Power on	Power off (no operation)
AC adaptor connected	Battery fully charged	<ul style="list-style-type: none"> <li>• Operates</li> <li>• No charge</li> <li>• LED: <b>Battery</b> green DC IN green</li> </ul>	<ul style="list-style-type: none"> <li>• No charge</li> <li>• LED: <b>Battery</b> green DC IN green</li> </ul>
	Battery partially charged or no charge	<ul style="list-style-type: none"> <li>• Operates</li> <li>• Charge</li> <li>• LED: <b>Battery</b> orange DC IN green</li> </ul>	<ul style="list-style-type: none"> <li>• Quick charge</li> <li>• LED: <b>Battery</b> orange DC IN green</li> </ul>
	No battery installed	<ul style="list-style-type: none"> <li>• Operates</li> <li>• No charge</li> <li>• LED: <b>Battery</b> off DC IN green</li> </ul>	<ul style="list-style-type: none"> <li>• No charge</li> <li>• LED: <b>Battery</b> off DC IN green</li> </ul>

Table 6-1 Power conditions continued

		Power on	Power off (no operation)
AC adaptor not connected	Battery charge is above low battery trigger point	<ul style="list-style-type: none"><li>• Operates</li><li>• LED: <b>Battery</b> off <b>DC IN</b> off</li></ul>	
	Battery charge is below low battery trigger point	<ul style="list-style-type: none"><li>• Operates</li><li>• LED: <b>Battery</b> flashes orange <b>DC IN</b> off</li></ul>	
	Battery charge is exhausted	Computer shuts down	
	No battery installed	<ul style="list-style-type: none"><li>• No operation</li><li>• LED: <b>Battery</b> off <b>DC IN</b> off</li></ul>	

## Monitoring of power condition

As shown in the below table, the **Battery**, **DC IN** and **Power** indicators on the system indicator alert you to the computer's operating capability and battery charge status.

### Battery indicator

Check the **Battery** indicator to determine the status of the battery pack. The following indicator lights indicate the battery status:

<b>Flashing orange</b>	The battery charge is low, the AC adaptor must be connected in order to recharge the battery.
<b>Orange</b>	Indicates the AC adaptor is connected and the battery is charging.
<b>Green</b>	Indicates the AC adaptor is connected and the battery is fully charged.
<b>No light</b>	Under any other conditions, the indicator does not light.



*If the battery pack becomes too hot while it is being charged, the charge will stop and the **Battery** indicator will go out. When the battery pack's temperature falls to a normal range, charging will resume - this process will occur regardless of whether the computer's power is on or off.*

## DC IN indicator

Check the **DC IN** indicator to determine the power status with the AC adaptor connected - the following indicator conditions should be noted:

<b>Green</b>	Indicates the AC adaptor is connected and is correctly supplying power to the computer.
<b>Flashing orange</b>	Indicates a problem with the power supply. You should initially try plugging the AC adaptor into another power outlet - if it still does not operate properly, you should contact your reseller or dealer.
<b>No light</b>	Under any other conditions, the indicator does not light.

## Power indicator

Check the **Power** indicator to determine the power status of the computer - the following indicator conditions should be noted:

<b>Green</b>	Indicates power is being supplied to the computer and the computer is turned on.
<b>Blinking orange</b>	Indicates that the computer is in Sleep Mode and that there is sufficient power available (AC adaptor or battery) to maintain this condition. In Sleep Mode, this indicator will turn on for one second and off for two seconds.
<b>No light</b>	Under any other conditions, the indicator does not light.

## Battery

This section explains battery types, handling and use.

### Battery types

The computer has four different types of batteries.

#### ***Battery pack***

When the AC adaptor is not connected, the computer's main power source is a removable lithium ion battery pack, also referred to in this manual as the main battery. You can purchase additional battery packs for extended use of the computer away from an AC power source although you should not change the battery pack while the AC adaptor is connected.

Before you remove the battery pack, save your data and shut down the computer, or place the computer into Hibernation Mode. Please be aware that, when placing the computer into Hibernation Mode, the contents of memory will be saved to the hard disk drive, although for safety sake, it is best to also save your data manually.

### ***Extended Capacity Battery Pack (Included with some models, or option)***

The Extended Capacity Battery Pack is included with some models, or can be purchased separately as an optional accessory.

### ***High Capacity Battery Pack (Included with some models, or option)***

The High Capacity Battery Pack is included with some models, or can be purchased separately as an optional accessory.

### ***Real Time Clock (RTC) battery***

The Real Time Clock (RTC) battery provides power for the internal real time clock and calendar function and also maintains the system configuration while the computer is turned off. If the RTC battery becomes completely discharged, the system will lose this information and the real time clock and calendar will stop working - in this instance the following message will be displayed when you turn on the power:



```
**** RTC battery is low or CMOS checksum is
inconsistent ****
Press [F1] key to set Date/Time.
```

You can change the Real Time Clock settings by turning the computer on while pressing the **ESC** key and then the **F1** key when prompted. Please refer to Chapter 8 [Troubleshooting](#) for further information.



*The RTC battery does not charge while the computer is turned off even if the AC adaptor is attached.*

## **Care and use of the battery pack**

This section provides the important safety precautions in order to handle your battery pack properly.

Refer to the enclosed ***Instruction Manual for Safety and Comfort*** for detailed precautions and handling instructions.



- *Make sure the battery is securely installed in the computer before attempting to charge the battery pack. Improper installation could generate smoke or fire, or cause the battery pack to rupture.*
- *Keep the battery pack out of reach of infants and children. It can cause injury.*





- *The battery pack, Extended Battery Pack and High Capacity Battery Pack are lithium ion batteries, which can explode if not replaced, used, handled or disposed of properly. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by TOSHIBA as replacements.*
- *The computer's RTC battery is a Ni-MH battery and should be replaced only by your dealer or by a TOSHIBA service representative. The battery can explode if not properly replaced, used, handled or disposed. Dispose of the battery as required by local ordinances or regulations.*
- *Charge the battery pack only in an ambient temperature between 5 and 35 degrees Celsius. Otherwise, the electrolyte solution might leak, battery pack performance might deteriorate and the battery life might be shortened.*
- *Never install or remove the battery pack without first turning off the power and disconnecting the AC adaptor. Never remove the battery pack while the computer is in Sleep Mode. Data could be lost.*
- *When the High Capacity Battery Pack is connected to the computer, do not hold on only to the High Capacity Battery Pack when lifting the computer up. The High Capacity Battery Pack may separate from the computer, causing it to fall and cause injuries.*



- *Never remove the battery pack while the Wake-up on LAN function is enabled. Data will be lost. Before you remove a battery pack, disable the Wake-up on LAN function.*
- *Never remove the battery pack while the Wake-up on Wireless LAN function is enabled. Data will be lost. Before you remove a battery pack, disable the Wake-up on Wireless LAN function.*

## Charging the batteries

When the power in the battery pack becomes low, the **Battery** indicator will flash orange to indicate that only a few minutes of battery power remain. If you continue to use the computer while the **Battery** indicator flashes, the computer will enable Hibernation Mode so that you do not lose any data, and automatically turn itself off.

You must recharge a battery pack when it becomes discharged.

### Procedures

To recharge a battery pack while it is installed in the computer, connect the AC adaptor to the DC IN 15V jack and plug the other end into a working outlet - the **Battery** indicator will glow orange while the battery is being charged.



*Use only the computer connected to an AC power source or optional TOSHIBA Battery charger to charge the battery pack. Never attempt to charge the battery pack with any other charger.*

## Time

Refer to User Information Guide about Charging time.

### Battery charging notice

The battery may not begin charging immediately under the following conditions:

- The battery is extremely hot or cold (if the battery is extremely hot, it might not charge at all). To ensure the battery charges to its full capacity, you should charge it at room temperature of between 5° to 35°C (41° to 95°F).
- The battery is nearly completely discharged. In this instance you should leave the AC adaptor connected for a few minutes and the battery should begin charging.

The **Battery** indicator may show a rapid decrease in battery operating time when you try to charge a battery under the following conditions:

- The battery has not been used for a long time.
- The battery has completely discharged and been left in the computer for a long time.
- A cool battery is installed in a warm computer.

In such cases you should follow the steps as detailed below:

1. Fully discharge the battery by leaving it in the computer with the power on until the system automatically turns itself off.
2. Connect the AC adaptor to the DC IN 15V jack of the computer, and to a wall outlet that is supplying power.
3. Charge the battery until the **Battery** indicator glows green.

Repeat these steps two or three times until the battery recovers normal capacity.

## Monitoring battery capacity

Remaining battery power can be monitored using the following methods.

- Clicking the battery icon on the task bar
- Via the Battery Status in the Windows Mobility Center window



- *You should wait at least 16 seconds after turning on the computer before trying to monitor the remaining operating time. This is because the computer needs this time to check the battery's remaining capacity and then calculate the remaining operating time, based on this together with the current power consumption.*
- *Please be aware that the actual remaining operating time may differ slightly from the calculated time.*
- *With repeated discharges and recharges, the battery's capacity will gradually decrease. In view of this it will be noted that an often used, older battery will not operate for as long as a new battery even when both are fully charged.*

## Maximizing battery operating time

A battery's usefulness depends on how long it can supply power on a single charge, while how long the charge lasts in a battery depends on:

- Processor speed
- Screen brightness
- System Sleep Mode
- System Hibernation Mode
- Display power off period
- Hard disk drive power off period
- How often and for how long you use the hard disk drive and external disk(c) drives, for example, optical disc and floppy diskette drive.
- How much charge the battery contained to begin with.
- How you use optional devices, such as a PC Cards, to which the battery supplies power.
- Whether you enable Sleep Mode, which can conserve battery power if you are frequently turning the computer off and on.
- Where you store your programs and data.
- Whether you close the display panel when you are not using the keyboard - closing the display saves power.
- The environmental temperature - operating time decreases at low temperatures.
- The condition of the battery terminals - you should always ensure the terminals stay clean by wiping them with a clean dry cloth before installing the battery pack.

## Retaining data with power off

Refer to User Information Guide about Retaining time.

## Extending battery life

To maximize the life of your battery packs:

- At least once a month, disconnect the computer from a power source and operate it on battery power until the battery pack fully discharges. Before doing so, follow the steps as detailed below.
  1. Turn off the computer's power.
  2. Disconnect the AC adaptor and turn on the computer's power - if it does not turn on then go to Step 4.
  3. Operate the computer on battery power for five minutes. If you find that the battery pack has at least five minutes of operating time, continue operating until the battery pack is fully discharged, however, if the **Battery** indicator flashes or there is some other warning to indicate a low battery condition, go to Step 4.

4. Connect the AC adaptor to the DC IN 15V jack of the computer, and to a wall outlet that is supplying power. The **DC IN** indicator should glow green, and the **Battery** indicator should glow orange to indicate that the battery pack is being charged, however, in the event that **DC IN** indicator does not glow this indicates that power is not being supplied - check the connections for the AC adaptor and the power cord.
  5. Charge the battery pack until the **Battery** indicator glows green.
- If you have extra battery packs, rotate their use.
  - If you will not be using the system for an extended period, for example for more than one month, remove the battery pack from the computer.
  - Store spare battery packs in a cool dry place out of direct sunlight.

## Replacing the battery pack

Please be aware that the battery pack is classified as a consumable item.

The operating life of the battery pack will gradually reduce through repeated charging and discharging, and will need to be replaced when it reaches the end of its operating life. In addition to this, you might also replace a discharged battery pack with a charged spare when you are operating your computer away from an AC power source for an extended period of time.

This section explains how to remove and install the battery pack, and begins with the removal process which is detailed through the following steps.



- *Do not remove the battery pack while the computer is in Sleep Mode. Data is stored in RAM, so if the computer loses power it could be lost.*
- *In Hibernation Mode, data will be lost if you remove the battery pack or disconnect the AC adaptor before the save is completed. Wait for the **Hard Disk Drive** indicator to go out.*
- *Do not touch the battery release latch while holding the computer or the battery pack might fall out due to the unintentional release of the battery release latch and cause injuries.*

## Removing the battery pack

To remove a discharged battery, follow the steps as detailed below:

1. Save your work.
2. Turn the computer's power off - ensure that the **Power** indicator is off.
3. Remove all cables and peripherals that are connected to the computer.
4. Close the display panel and turn the computer upside down.
5. Slide the battery lock (1) into its (2) position.

6. Slide and hold the battery release latch (2) to disengage the battery pack and then remove it from the computer (3).

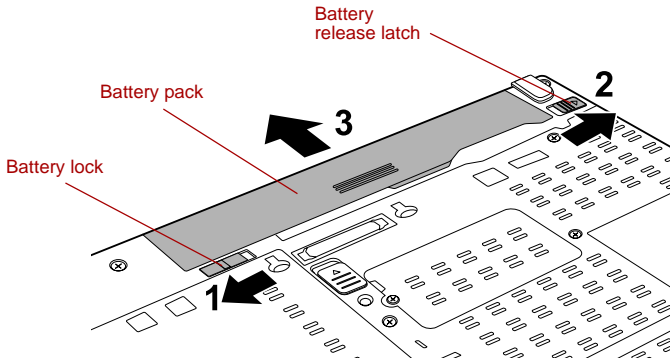



Figure 6-1 Releasing the battery pack

### Installing the battery pack

To install a battery pack, follow the steps as detailed below:



*Do not touch the battery release latch while holding the computer or the battery pack might fall out due to the unintentional release of the battery release latch and cause injuries.*

1. Insert the battery pack as far as it will go into the computer (1).
2. Ensure that the battery pack is securely in place and the battery lock (2) is in its (  ) position.

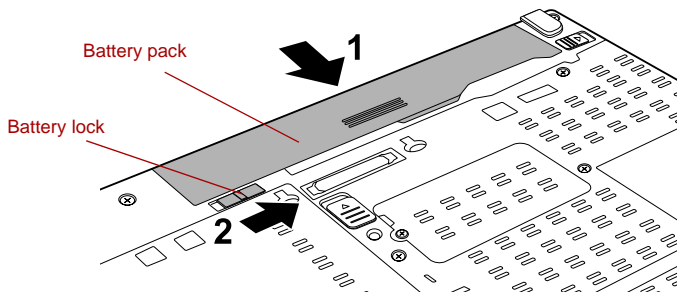


Figure 6-2 Securing the battery pack

3. Turn your computer over.

## TOSHIBA Password Utility

The TOSHIBA Password Utility provides two levels of password security: User and Supervisor.



*Passwords set by the TOSHIBA Password Utility function are different from the Windows password.*

### User Password

To start the utility, point to or click the following items:

**Start -> All Programs -> TOSHIBA -> Utilities -> Password Utility**

The User Password dialog box contains two main fields: **User Password** and **User Token**.

User authentication may be required to validate user rights when using "TOSHIBA Password Utility" to delete or change passwords, or create tokens, etc.

#### *User Password field*

##### ■ **Set** (button)

Click this button to register a password of up to 50 characters. After a password is set, you will be prompted to enter it when you start the computer. Check "Set the same string simultaneously as the HDD User Password" when setting the HDD User Password.



- *After you set the password, a dialog box will be displayed asking whether you want to save it to a floppy diskette or other media. If you forget the password, you can open the password file on another computer. Be sure to keep the media in a safe place.*
- *When entering the character string to register the password, enter from the keyboard character by character and do not enter as ASCII code or copy-and-paste the character string. In addition, ensure that the registered password is correct by outputting the character string to the password file.*
- *When entering a password, do not enter any characters (for example "!" or "#") produced by pressing the **SHIFT** or **ALT** keys and so on.*

##### ■ **Delete** (button)

Click this button to delete a registered password. Before you can delete a password, you must first enter the current password correctly or insert a proper token. Please use BIOS Setup to change or delete the HDD Passwords or to set the HDD Master Password.

##### ■ **Change** (button)

Click this button to change a registered password. Before you can change a password, you must first enter the current password correctly or insert a proper token. Please use BIOS Setup to change or delete the HDD Passwords or to set the HDD Master Password.

■ **Owner String** (text box)

You can use this box to associate text with the password. After you enter text, click **Apply** or **OK**. When the computer is started, this text will be displayed together with the prompt asking you to enter a password.



■ *If you forget your HDD User Password, TOSHIBA will NOT be able to assist you, and your HDD will be rendered COMPLETELY and PERMANENTLY INOPERABLE. TOSHIBA will NOT be held responsible for any loss of any data, any loss of use or access to your HDD, or for any other losses to you or any other person or organization that result from the loss of access to your HDD. If you can't accept this risk, don't register the HDD User Password.*

■ *If you want to register the HDD master Password or the password for the Ultra Slim Bay HDD, you can set them by the BIOS SETUP Program.*

■ *When saving the HDD User Password shut down or restart the computer. If the computer is not shut down or restarted, the saved data may not be correctly reflected. For more information on shutting down or restarting the computer, refer to [Turning on the power](#) in Chapter 1.*



Refer to [Starting and Ending the BIOS Setup Program](#) section in Chapter 7 for more information.

### **User Token field**

■ **Create** (button)

You can use an SD Card token, instead of entering the password. After you have registered a password, insert an SD Card in SD Card slot and click **Create**. You can use an SD Card of any capacity, but it must be formatted correctly.

If an unformatted card or one with an incompatible format is inserted, you will be prompted to format it with a tool named TOSHIBA SD Memory Card Format. To start the format tool, point to or click the following items:

**Start -> All Programs -> TOSHIBA -> Utilities -> SD Memory Card Format**



*When you format an SD memory card, all data will be deleted. Be sure to save data on the card to other media before you format the card.*

■ **Disable** (button)

Click this button to invalidate the token. You cannot re-validate old tokens, but you can use the same SD Cards to create new tokens.



*After using the token created for authentication, do not leave it inserted in the SD Card slot, ensure that the token is removed from the slot and stored in a safe location. If the token is left in the slot, there is a danger of theft or a third party using it for authentication and operating the user's computer (resulting in extraction, modification or deletion of data) when the user is not at their desk.*

## Supervisor Password

If you set a Supervisor Password, some functions might be restricted when a user logs on with the User Password. To set a Supervisor Password, execute the file TOSPU.EXE. The file is located at:

**C:\Program Files\Toshiba>PasswordUtility\TOSPU.exe**

This utility lets you do the following:

- Register, delete or change the Supervisor Password.
- Create or invalidate a Supervisor Password token.



*This function in the TOSHIBA Password Utility lets you invalidate only supervisor tokens or all tokens, including user and supervisor tokens.*

- Specify restrictions for general users.

## Starting the computer by password

If you have already registered a password, there are three ways to start the computer:

- Insert an SD Card token before you turn on the computer. The computer will start normally, without displaying a password prompt.
- Swipe your fingerprint on the sensor if you have already registered the fingerprint with the Fingerprint utility and enabled Fingerprint System Boot Authentication. If you would not like to swipe your finger or cannot authenticate the fingerprint for some reasons, push the **BACK SPACE** key to skip the fingerprint authentication screen. You can try to swipe the fingerprint up to five times. If you failed fingerprint authentication five times, you must enter the password manually to start the computer.
- Enter the password manually.



*The password is necessary only if the computer was Shutdown and Hibernation in Boot Mode.*

*It is not needed in Sleep Mode and Restart.*

To enter a password manually, follow these steps:

1. Turn on the power as described in Chapter 1, [Getting Started](#). The following message will appear in the screen:



**Password=**

2. Enter the Password.
3. Press **ENTER**.



*If you enter the password incorrectly three times in a row, the computer shuts off. In this case, you must turn the computer back on to retry password entry.*



## Power-up modes

The computer has three different power-up modes as follows:

- **Boot Mode** : The computer will shut down without saving data - in view of this you must always save your work before you turn the computer off.
- **Hibernation Mode** : Data in memory will be saved to the hard disk drive.
- **Sleep Mode** : Data will maintained in the computer's memory.



Please refer to the sections [Turning on the power](#) and [Turning off the power](#) in Chapter 1, *Getting Started* for further information.

## Windows utilities

You can configure various settings associated with both Sleep Mode and Hibernation Mode within the Power Options (to access it, **Start** -> **Control Panel** -> **System and Maintenance** -> **Power Options**).

## Hot keys

You can use the **FN + F3** hot key to enter Sleep Mode or **FN + F4** to enter Hibernation Mode - please refer to Chapter 5, [The Keyboard](#) for further details.

## Panel power on/off

You can set up your computer so that power is turned off automatically when you close the display panel, and turned on again when you open it. Please note that this function is only available for Sleep Mode or Hibernation Mode, not for Boot Mode.



*If the panel power off function is enabled, and you manually shut down Windows, do not close the display panel until the shut down process has been completed.*

## System Auto Off

This feature turns the system off automatically if it is not used for a set period of time, and can be configured for both Sleep Mode or Hibernation Mode.

# Chapter 7

## HW Setup & BIOS Setup

This chapter explains how to use the TOSHIBA HW Setup program to configure your computer, and provides information on settings for various functions.

### Accessing HW Setup

To run the HW Setup program, click **Start -> All Programs -> TOSHIBA -> Utilities -> HWSetup**.

### HW Setup window

The HW Setup window contains a number of tabs (General, Display, Boot Priority, Keyboard, CPU, LAN, Device Config and USB) to allow specific functions of the computer to be configured.

In addition there are also three buttons : **OK**, **Cancel** and **Apply**.

<b>OK</b>	Accepts your changes and closes the HW Setup window.
<b>Cancel</b>	Closes the window without accepting your changes.
<b>Apply</b>	Accepts all your changes without closing the HW Setup window.

**General**

This window displays the BIOS version and contains two buttons : **Default** and **About**.

Default	Return all HW Setup values to the factory settings.
About	Display the HW Setup version.

**Setup**

This field displays the installed BIOS version and date.

**Display**

This tab lets you customize your computer's display settings for either the internal display or an external monitor.

**Power On Display**

This tab allows you to select the display to be used when the computer is started. Please note that this setting is only available on standard VGA mode and is not available as part of the Windows Desktop properties.



*The Power On Display is supported with some models.*

Auto-Selected	Selects an external monitor if one is connected, otherwise, it selects the internal display (default).
LCD + Analog RGB	Selects both the internal display and an external monitor for simultaneous display.



*If the connected external monitor does not support the computer's current video mode, selecting the LCD + Analog RGB mode will not display any image on the external monitor.*

## Boot Priority

### Boot Priority Options

This tab allows you to select the priority for booting the computer - the following settings are available:

<b>FDD → HDD → CD-ROM → LAN</b>	The computer looks for bootable files on devices in the following order: 1. floppy diskette drive* <sup>1</sup> , 2. hard disk drive, 3. CD-ROM* <sup>2</sup> , 4. LAN.
<b>HDD → FDD → CD-ROM → LAN</b>	The computer looks for bootable files on devices in the following order: 1. hard disk drive, 2. floppy diskette drive* <sup>1</sup> , 3. CD-ROM* <sup>2</sup> , 4. LAN.
<b>FDD → CD-ROM → LAN → HDD</b>	The computer looks for bootable files on devices in the following order: 1. floppy diskette drive* <sup>1</sup> , 2. CD-ROM* <sup>2</sup> , 3. LAN, 4. hard disk drive.
<b>HDD → CD-ROM → LAN → FDD</b>	The computer looks for bootable files on devices in the following order: 1. hard disk drive, 2. CD-ROM* <sup>2</sup> , 3. LAN, 4. floppy diskette drive* <sup>1</sup> .
<b>CD-ROM → LAN → FDD → HDD</b>	The computer looks for bootable files on devices in the following order: 1. CD-ROM* <sup>2</sup> , 2. LAN, 3. floppy diskette drive* <sup>1</sup> , 4. hard disk drive.
<b>CD-ROM → LAN → HDD → FDD</b>	The computer looks for bootable files on devices in the following order: 1. CD-ROM* <sup>2</sup> , 2. LAN, 3. hard disk drive, 4. floppy diskette drive* <sup>1</sup> .

You can override the settings and manually select a boot device by pressing one of the following keys while the computer is booting:

<b>U</b>	Selects the USB floppy diskette drive.
<b>N</b>	Selects the network.
<b>1</b>	Selects the built-in hard disk drive.
<b>2</b>	Selects the secondary hard disk drive.
<b>C</b>	Selects the CD-ROM* <sup>2</sup> .
<b>M</b>	Selects the USB memory drive.

\*<sup>1</sup> The floppy diskette drive will be used to start the computer when there is a bootable disk contained in the external drive. If SD memory card is installed as well, the external floppy diskette drive will be checked first, followed by the SD memory device itself.

\*<sup>2</sup> The optical disc drive will be used to start the computer when there is a bootable disk contained in the drive.

To change the boot drive, follow the steps below.

1. Hold down **F12** and boot the computer.
2. The following menu will be displayed with the following icons: Built-in hard disk drive, Ultra Slim Bay hard disk drive, CD-ROM, FDD (or SD memory card), Network (LAN), USB Memory boot.



*Please note that a highlighted bar will only appear under the selected device.*

3. Use the left/right cursor keys to highlight the boot device you want and press **ENTER**.



*If a Supervisor Password has been set, manual boot device selection functions may be restricted.*

*The boot device selection methods described above will not change the boot priority settings that have been configured in HW Setup. In addition, if you press a key other than one of those listed, or if the selected device is not installed, the system will continue to boot according to the current and available settings in HW Setup.*

### **HDD Priority Options**

If more than one hard disk drive is installed in the computer, this option allows you to set the priority associated with hard disk drive detection - the first hard disk drive detected that has a valid boot command on it will be the device from which the computer will start.

Built-in HDD -> 2nd HDD -> USB (Default)	The priority is set as built-in HDD -> 2nd HDD -> USB.
2nd HDD -> Built-in HDD -> USB	The priority is set as 2nd HDD -> built-in HDD -> USB.
Built-in HDD -> USB -> 2nd HDD	The priority is set as built-in HDD -> USB -> 2nd HDD.
2nd HDD -> USB -> Built-in HDD	The priority is set as 2nd HDD -> USB -> built-in HDD.
USB -> Built-in HDD -> 2nd HDD	The priority is set as USB -> built-in HDD -> 2nd HDD.
USB -> 2nd HDD -> Built-in HDD	The priority is set as USB -> 2nd HDD -> built-in HDD.



- *If a boot command is not found on the first detected hard disk drive, the system will not boot from next hard disk drive in the list, instead it will search for the next device in the Boot Priority list and startup from this as appropriate.*
- *Please be aware that some modules may not be displayed.*

**USB Memory BIOS Support Type**

This option allows you to set the type of the USB memory to be used as a startup device.

<b>HDD</b>	Sets the USB memory to be the equivalent of a hard disk drive (default). With this setting, the USB memory device can be used to start the computer as though it were a hard disk drive based on the hard disk drive settings within both the Boot Priority and HDD Priority options detailed previously.
<b>FDD</b>	Sets the USB memory to be the equivalent of a floppy diskette drive. With this setting, the USB memory device can be used to start the computer as though it were a floppy diskette based on the floppy diskette drive settings within the Boot Priority option detailed previously.

**Keyboard**

**Wake-up on Keyboard**

When this feature is enabled, and the computer is in Sleep Mode, you can turn on the system by pressing any key. However, please be aware that this option will only work with the internal keyboard and only when the computer is in Sleep Mode.

<b>Enabled</b>	Enables the Wake-up on Keyboard function.
<b>Disabled</b>	Disables the Wake-up on Keyboard function (Default).

## CPU

This function allows you to set the processor's operating mode.

### Dynamic CPU Frequency Mode

This option allows you to configure the power saving modes associated with the processor - the following settings are available:

<b>Dynamically Switchable</b>	The processor's power consumption and automatic clock speed switching functions are enabled - in use the processor's operation is automatically switched when necessary (default).
<b>Always High</b>	The processor's power consumption and automatic clock speed switching functions are disabled - in use the processor will always run at its highest level of power consumption and its highest speed.
<b>Always Low</b>	The processor's power consumption and automatic clock speed switching functions are disabled - in use the processor will always run at a lower level of power consumption and a low speed.

## LAN

### Wake-up on LAN

This feature lets the computer's power be turned on when it receives a wake-up signal from the LAN.



*Do not install or remove a memory module while Wake-up on LAN is enabled.*



*The Wake-up on LAN function consumes power even when the system is off. Leave the AC adaptor connected while using this feature.*

Power will be automatically turned on when a signal is received from an administrator's computer which is connected via a network.

The following settings can be changed when the Built-in LAN is **Enabled**.

Connect the AC adaptor when using the Wake-up on LAN function. The battery retention time will be shorter than the times listed in this manual when this function is enabled. Refer to the section in chapter 6, [Retaining data with power off](#).

<b>Enabled</b>	Enables Wake-up on LAN.
<b>Disabled</b>	Disables Wake-up on LAN (Default).

### ***Built-in LAN***

This feature enables or disables the Built-in LAN.

<b>Enabled</b>	Enables Built-in LAN functions (Default).
<b>Disabled</b>	Disables Built-in LAN functions.

### ***Device Config***

#### ***Device Configuration***

This option allows you to set how the computer's hardware devices will be configured.

<b>All Devices</b>	The computer's BIOS will setup and configure all devices.
<b>Setup by OS</b>	The operating system will setup and configure all of the devices that it can control (default).

### ***USB***

#### ***USB KB/Mouse Legacy Emulation***

You can use this option to enable or disable USB keyboard/mouse legacy emulation so that, even if your operating system does not support USB devices, you can still use a standard USB mouse and keyboard - to achieve this you should set the appropriate option(s) to Enabled.

<b>Enabled</b>	Enables the USB KB/Mouse Legacy Emulation function (Default).
<b>Disabled</b>	Disables the USB KB/Mouse Legacy Emulation function.

#### ***USB-FDD Legacy Emulation***

Use this option to enable or disable USB floppy diskette drive legacy emulation. If your operating system does not support USB, you can still use a USB floppy diskette drive by setting the **USB-FDD Legacy Emulation** item to **Enabled**.

<b>Enabled</b>	Enables the USB floppy diskette drive legacy emulation function (Default).
<b>Disabled</b>	Disables the USB floppy diskette drive legacy emulation function.



## BIOS Setup Program

Settings for some features are carried out in the BIOS setup program.



### Notes Before Using the BIOS Setup Application

- *In most cases, changes to the system's configuration should be made within Windows by using applications such as **TOSHIBA HW Setup**, **TOSHIBA Password Utility**, **Windows Device Manager** and so forth. If you make changes to the configuration through the BIOS setup program, please be aware that the configuration set through the Windows applications will take priority.*
- *Changes to the settings within the BIOS setup program will not be erased even if the power supply is turned off and the main battery removed. However, if the built-in Real Time Clock (RTC) battery runs out of power, most of the settings will revert back to their default values. However, please note that the following items will not be affected in this instance:*
  - Password
  - Hard Disk Drive Password
  - Security Controller
  - Fingerprint patterns

## Starting and Ending the BIOS Setup Program

### Starting the BIOS Setup Program

1. Turn on the computer while pressing the **ESC** key - if the **Password =** prompt is displayed, enter either the Supervisor Password, if one is set, or the User Password and press the **ENTER** key. Please refer to Chapter 6, the [TOSHIBA Password Utility](#) for further details about the User Password.
2. At the **Check system. Then press [F1] key.** prompt, press the **F1** key - the BIOS setup application will start up.



*Please refer to the operating instructions displayed in the settings screen.*

### Ending the BIOS Setup Program

In order to save the changes you have made and end the BIOS setup application, follow the steps as detailed below:

1. Press the **END** key - this will cause the **Are you sure? (Y/N).** The **changes you made will cause the system to reboot.** prompt to be displayed at the bottom of the screen.
2. Press the **Y** key - this will save the configuration changes and end the BIOS setup application, automatically restarting the computer.

### Ending the BIOS Setup Program Halfway

The configuration settings can be terminated halfway without saving any of the changes made by following the steps detailed below:

1. Press the **Esc** key - the **Exit without saving? (Y/N)** prompt to be displayed at the bottom of the screen.
2. Press the **Y** key - the BIOS setup application will exit and the computer will automatically restart.

### Supervisor Password

This setting, which is displayed on the first page of the setup screen, allows you to register a Supervisor Password of the computer.

<b>Not Registered</b>	Supervisor Password has not been registered (Default).
<b>Registered</b>	Supervisor Password has been registered.



*The User Password and Supervisor Password configured in BIOS SETUP can also be changed or deleted using the TOSHIBA Password Utility. When unable to perform the following operations, use the TOSHIBA Password Utility to change the configuration or delete the Supervisor Password.*

- Configuration changes in the BIOS Setup Program
- Configuration changes in the HW Setup utility
- Selection of the startup device during computer recovery

### Core Multi - Processing

The Core Multi-Processing sets the CPU operating mode.

Enabled is Dual Core mode.

Disabled is Single Core mode.

<b>Enabled</b>	Enables Core Multi - Processing functions (Default).
<b>Disabled</b>	Disables Core Multi - Processing functions.

### Virtualization Technology

Virtualization Technology sets enable or disable of the Intel Virtualization Technology installed in the CPU.

Intel Virtualization Technology is the technique that allows one machine to operate as multiple virtual machines.



*The Virtualization Technology is supported with some models.*

The Disabled command does not allow use of the Intel Virtualization Technology.

The Enabled command allows use of the Intel Virtualization Technology.

<b>Enabled</b>	Enables Virtualization Technology.
<b>Disabled</b>	Disables Virtualization Technology (Default).

## Enhanced C-States

This feature enables or disables the Enhanced C-States.

<b>Enabled</b>	This lowers the power consumption (Default).
<b>Disabled</b>	This does not lower the power consumption.

## Execute-Disable Bit Capability

This setting, which is displayed on the first page of the setup screen, configures the Execute-Disable Bit function of the computer's processor. This function is specific to Intel® processors and, when activated, helps to reduce security threats to the computer by preventing certain classes of malicious 'buffer overflow' attacks when combined with a supporting operating system such as Windows Vista™.

<b>Available</b>	Makes the processor's Execute-Disable Bit Capability available for use (Default).
<b>Not Available</b>	Disables the processor's Execute-Disable Bit Capability so that it is not available for use.

## On Battery

The following settings can be changed when the Wake-up on LAN is Enabled.

<b>Enabled</b>	Enables Wake-up on LAN function when operating from the battery.
<b>Disabled</b>	Disables Wake-up on LAN function when operating from the battery (Default).

## Critical Battery Wake-up

Configures what action is taken when the remaining battery power is close to running out while the system is in Sleep Mode.

This setting is only available when the Critical battery action in Windows is set to Hibernate (Default).

To access it, **Start -> Control Panel -> System and Maintenance -> Power Options -> Edit Plan Settings -> Change advanced power settings -> Battery.**

The operation of this function is dependent upon battery status.

<b>Enabled</b>	When the remaining battery power is about to run out while the system is in Sleep Mode, the system is automatically woken up and then switched to Hibernation Mode (Default).
<b>Disabled</b>	No action is taken even if the remaining battery power is about to run out while the system is in Sleep Mode.

## LCD Display Stretch

Select the display function of the computer's display panel.



*The LCD Display Stretch is supported with some models.*

<b>Enabled</b>	Display modes with low resolution are stretched and displayed (Default).
<b>Disabled</b>	Display modes with low resolution are not stretched and displayed in their original state.

## Security controller

Please note that the security controller settings are available on the second page of the BIOS setup application.

### TPM

This setting enables or disables the computer's Trusted Platform Module (TPM) security controller.

<b>Enabled</b>	Enable Trusted Platform Module security.
<b>Disabled</b>	Disable Trusted Platform Module security (default).

### Clear TPM Owner

This setting is used to erase the data stored as part of the Trusted Platform Module, as would be required, for example, when disposing of the computer or when the owner of the computer changes. Once this operation is carried out, the Trusted Platform Module configuration settings are erased such that any encrypted data can no longer be decrypted and the files can no longer be read. In view of this you must ensure that you backup or delete the data as necessary before carrying out this operation.

The procedure to follow is as detailed below:

1. Move the cursor to the **Clear TPM Owner** setting and press either the **Space** key or **BACK SPACE** key.
2. A message is displayed at which you should press the **Y**, **E**, **S**, and **ENTER** keys in sequence - the Trusted Platform Module information will then be erased.
3. The Trusted Platform Module setting will then change from being **Enable** to **Disabled** and the setting no longer displayed.



*When using TPM, please refer to the **Infineon TPM Installation Guide** from the **C:\TOSAPINS\Infineon TPM Installation Guide** and ensure that the user reads as it contains usage information and notes on using TPM security.*

### Diagnostic Mode

Allows you to set whether the BIOS diagnostic test is enabled or disabled.

<b>Disabled</b>	The diagnostic test is disabled (Default).
<b>Enabled</b>	The diagnostic test is enabled.

## Chapter 8

### Troubleshooting

TOSHIBA have designed this computer for durability, however, should problems occur you are able to use the procedures detailed in this chapter to help determine the cause.

All users should become familiar with this chapter as knowing what might go wrong can help prevent problems from occurring in the first place.

### Problem solving process

Resolving problems will be much easier if you observe the following guidelines:

- Stop immediately when you recognize a problem exists as taking further action may result in data loss or damage, or you may destroy valuable problem related information that can help solve the problem.
- Observe what is happening - write down what the system is doing and what actions you performed immediately before the problem occurred. If you have a printer attached, print a copy of the screen using the computer's **PRTSC** key.

Please also be aware that the questions and procedures described in this chapter are meant only as a guide, they are not definitive problem solving techniques. In reality many problems can be solved simply, but a few may require help from your reseller, dealer or service provider - if you find you need to consult others, be prepared to describe the problem in as much detail as possible.

## Preliminary checklist

You should always consider the simplest solution first - the items detailed in this checklist are easy to fix and yet can cause what appears to be a serious problem:

- Make sure you turn on all peripheral devices before you turn on the computer - this includes your printer and any other external device you are using.
- Before you attach an external device you should first turn the computer off, then when you turn the computer back on again it will recognize the new device.
- Make sure all optional accessories are configured properly in the computer's setup program and that all required driver software has been loaded (please refer to the documentation included with the optional accessories for further information on its installation and configuration).
- Check all cables to ensure they are correctly and firmly attached to the computer - loose cables can cause signal errors.
- Inspect all connecting cables for loose wires and all connectors for loose pins.
- Check that your floppy diskette, CD or DVD media is correctly loaded and, in the case of a floppy diskette, that its write protect tab is correctly set.

Always try to make detailed notes of your observations and keep them in a permanent error log - this will help you to describe your problems to your reseller, dealer or service provider. In addition, if a problem recurs, the log you have made will help to identify the problem faster.

## Analyzing the problem

Sometimes the computer will give you clues that can help you identify why it is malfunctioning. In view of this you should keep the following questions in mind:

- Which part of the computer is not operating properly - keyboard, hard disk drive, display panel, touch pad, touch pad control buttons - as each device will produce different symptoms.
- Check the options within the operating system to ensure that its configuration is set properly.
- What appears on the display? Does it display any messages or random characters? If you have a printer attached, print a copy of the screen using the **PRINT** key and, if possible, look up the messages in the documentation included with the computer, software or operating system.
- Check that all connecting cables are correctly and firmly attached as loose cables can cause erroneous or intermittent signals.
- Do any indicators light, if so, which ones, what color are they and do they stay on or blink? Write down what you see.

- Do you hear any beeps, if so how many, are they long or short and are they high pitched or low pitched? In addition, is the computer making any unusual noises? Write down what you hear.

Record your observations so you can describe them in detail to your reseller, dealer or service provider.

<b>Software</b>	<p>The problems may be caused by your software or disk. If you cannot load a software package, the media may be damaged or the program might be corrupted - in these instances try loading another copy of the software if possible.</p> <p>If an error message appears while you are using a software package you should refer to the documentation supplied with it as this will usually include a problem solving section or a summary of error messages.</p> <p>Next, you should check any error messages against the operating system documentation.</p>
<b>Hardware</b>	<p>If you cannot find a software problem, you should then check the setup and configuration of your hardware. First run through the items in the preliminary checklist as described previously then, if you still cannot correct the problem, try to identify the source - the next section provides checklists for individual components and peripherals.</p>



*Before using a peripheral device or application software that is not an authorized Toshiba part or product, make sure the device or software can be used with your computer. Use of incompatible devices may cause injury or may damage your computer.*

## Hardware and system checklist

This section discusses problems caused by your computer's hardware or attached peripherals. Basic problems may occur in the following areas:

- |                             |                            |
|-----------------------------|----------------------------|
| ■ System start-up           | ■ Fingerprint Sensor       |
| ■ Self test                 | ■ USB device               |
| ■ Power                     | ■ Additional memory module |
| ■ Password                  | ■ Sound system             |
| ■ Keyboard                  | ■ External monitor         |
| ■ Internal display panel    | ■ i.LINK (IEEE1394) device |
| ■ Hard disk drive           | ■ Modem                    |
| ■ DVD Super Multi drive     | ■ LAN                      |
| ■ USB floppy diskette drive | ■ Wireless LAN             |
| ■ PC Card                   | ■ Bluetooth                |
| ■ SD/SDHC Card              | ■ Recovery Discs           |
| ■ Dual Pointing Device      |                            |



## System start-up

When the computer does not start properly, check the following items:

- Self Test
- Power Sources
- Power-on Password

## Self test

When the computer starts up, the self test will be run automatically, and the following will be displayed:



In Touch with Tomorrow  
TOSHIBA

This message remains on the screen for a few seconds.

If the self test is successful, the computer tries to load the operating system according to how the **Boot Priority** option is set within the TOSHIBA HW Setup program.

If any of the following conditions are present, the self test has failed:

- The computer stops and does not proceed to display information or messages except for the TOSHIBA logo.
- Random characters appear on the screen and the system does not function normally.
- The screen displays an error message.

In these instances, turn off the computer, check all cable connections and then restart it - if the self test fails again, contact your reseller, dealer or service provider.

## Power

When the computer is not plugged into an AC power outlet, the battery pack is the primary power source. However, your computer also has a number of other power resources, including an intelligent power supply and a Real Time Clock (RTC) battery, all of which are interrelated with any one having the ability to produce apparent power problems.

This section provides checklists for AC power and the battery. If you cannot resolve a problem after following them, the cause may lie with another power related resource - in such an instance you should contact your reseller, dealer or service provider.

### ***Overheating power down***

In the event that the computer's internal operating temperature becomes too high, the system will automatically enter either Hibernation Mode or Sleep Mode and shut itself down.

Problem	Procedure
Computer shuts down and <b>DC IN</b> indicator blinks orange	Leave the computer off until the <b>DC IN</b> indicator stops blinking.



*It is recommended to leave the computer off until the interior reaches room temperature even though the **DC IN** indicator stops blinking.*

	If the computer has reached room temperature and it still does not start, or if it starts but shuts down quickly, contact your reseller, dealer or service provider.
Computer shuts down and its <b>DC IN</b> indicator is flashing green	This indicates a problem with the heat dispersal system - you should contact your reseller, dealer or service provider.

## AC power

If you have trouble turning on the computer with the AC adaptor connected you should check the status of the **DC IN** indicator. Please refer to Chapter 6, [Power and Power-Up Modes](#) for further information.

Problem	Procedure
AC adaptor doesn't power the computer ( <b>DC IN</b> indicator does not glow green)	<p>Check the connections to make sure that the power cord/adaptor is firmly connected to the computer and a working power outlet.</p> <p>Check the condition of the cord and terminals. If the cord is frayed or damaged it should be replaced, while if the terminals are soiled, they should be cleaned with a clean cotton cloth.</p> <p>If the AC adaptor still does not power the computer, you should contact your reseller, dealer or service provider.</p>

## Battery

If you suspect a problem with the battery, you should check the status of the **DC IN** indicator as well as the **Battery** indicator. Please refer to Chapter 6, [Power and Power-Up Modes](#) for more information on these indicators, together with general battery operation.

Problem	Procedure
Battery doesn't power the computer	The battery may be discharged - connect the AC adaptor to recharge the battery.

Problem	Procedure
Battery doesn't charge when the AC adaptor is attached ( <b>Battery</b> indicator does not glow orange).	<p>If the battery is completely discharged, it will not begin charging immediately, in these instances you should wait a few minutes before trying again. If the battery still does not charge, you should check that the power outlet the AC adaptor is connected to is supplying power - this can be tested by plugging another appliance into it.</p> <hr/> <p>Check whether the battery is hot or cold to the touch - if so, it will not charge properly and should be allowed to reach room temperature before you try again.</p> <hr/> <p>Unplug the AC adaptor and remove the battery to make sure its connecting terminals are clean - if necessary wipe them with a soft dry cloth lightly dipped in alcohol.</p> <p>Connect the AC adaptor and replace the battery, taking care to ensure that it is securely seated in the computer.</p> <p>Check the <b>Battery</b> indicator - if it does not glow, allow the computer to charge the battery for at least twenty minutes. If the <b>Battery</b> indicator starts to glow after this period, allow the battery to continue to charge for at least another twenty minutes before turning on the computer. However, if the indicator still does not glow, the battery may be at the end of its operating life and should be replaced. However, if you do not believe the battery is at the end of its operating life, you should speak to your reseller, dealer or service provider.</p> <hr/>
Battery doesn't power the computer as long as expected	<p>If you frequently recharge a partially charged battery, the battery might not charge to its full potential - in these instances you should fully discharge the battery and then attempt to charge it again.</p> <hr/> <p>Check the <b>Power saver</b> option under <b>Select a power plan</b> in the <b>Power Options</b>.</p> <hr/>

## Real Time Clock

Problem	Procedure
<p>The following message is Displayed on the screen:</p> <p><b>RTC battery is low or CMOS checksum is inconsistent. Press [F1] key to set Date/Time.</b></p>	<p>The charge in the Real Time Clock (RTC) battery has run out - you will need to set the date and time in the BIOS setup application by using the following steps:</p> <ol style="list-style-type: none"> <li>1. Press the <b>F1</b> key - the BIOS setup application will load.</li> <li>2. Set the date in the <b>System Date</b> field.</li> <li>3. Set the time in the <b>System Time</b> field.</li> <li>4. Press the <b>END</b> key - a confirmation message will be displayed.</li> <li>5. Press the <b>Y</b> key - the BIOS setup application will end and the computer will restart.</li> </ol>

## Password

Problem	Procedure
Cannot enter password	Please refer to the <a href="#">TOSHIBA Password Utility</a> section in Chapter 6, Power and Power-Up Modes for further information.

## Keyboard

Keyboard problems can be caused by the setup and configuration of the computer - please refer to Chapter 5, [The Keyboard](#) for further information.

Problem	Procedure
Some letter keys produce numbers	Check that the numeric keypad overlay is not activated - press the <b>FN + F11</b> hot key and try typing again.
Output to screen is garbled	<p>Please refer to your software's documentation to ensure that its is not remapping the keyboard in any way (remapping involves changing or reassigning the function of each key).</p> <p>If you are still unable to use the keyboard, you should contact your reseller, dealer or service provider.</p>

## Internal display panel

Apparent computer's display panel problems may be related to the computer's setup and configuration - please refer to Chapter 7, [HW Setup & BIOS Setup](#), for further information.

Problem	Procedure
No display	Press the <b>FN + F5</b> hot keys to adjust the display priority, and to make sure it is not set for output to an external monitor.
Markings appear on the computer's display panel.	These marks may have come from contact with the keyboard and Touch Pad while the display panel has been closed. You should try to remove the marks by gently wiping the display panel with a clean dry cloth or, if this fails, with a good quality LCD screen cleaner. In this latter instance you should always follow the instructions with the screen cleaner and always ensure you let the display panel dry properly before closing it.
Problems above remain unresolved or other problems occur	You should initially refer to the documentation supplied with you software to determine if it is this that is causing the problems. Alternatively you may wish to run the TOSHIBA PC Diagnostic Tool to check the general operation of the computer.  If you are still unable to resolve the problem, contact your reseller, dealer or service provider.

## Hard disk drive

Problem	Procedure
Computer does not boot from hard disk drive	Check to see whether that is a floppy diskette in the floppy diskette drive or a CD-ROM/DVD-ROM in the optical disc drive - if so remove it and try to start the computer again.  If this has no effect, check the <b>Boot Priority</b> setting within the TOSHIBA HW Setup utility - please refer to the <a href="#">Boot Priority</a> section in Chapter 7, <a href="#">HW Setup &amp; BIOS Setup</a> for further information.  Please refer to your operating system documentation in order to determine whether there is a problem with any of the operating system files or settings.

Problem	Procedure
Slow performance	<p>The files on the hard disk drive may be fragmented - in this instance you should run the disk Defragmentation utility to check the condition of your files and the hard disk drive. Please refer to the operating system's documentation or online Help File for further information on operating and using the Defragmentation utility.</p> <hr/> <p>As a last resort you should reformat the hard disk drive and then reload the operating system and all other files and data. If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

## DVD Super Multi drive

For more information, refer to Chapter 4, [Operating Basics](#).

Problem	Procedure
You cannot access a CD/DVD in the drive	<p>Make sure the drive's disc tray is securely closed. Press gently until it clicks into place.</p> <hr/> <p>Check whether the drive power is on. If the power is off, press the <b>FN + Tab</b> hot key and turn on the power.</p> <hr/> <p>Open the disc tray and make sure the CD/DVD is properly seated. It should lie flat with the label facing up.</p> <hr/> <p>A foreign object in the disc tray could block laser light from reading the CD/DVD. Make sure there is no obstruction. Remove any foreign object.</p> <hr/> <p>Check whether the CD/DVD is dirty. If it is, wipe it with a clean cloth dipped in water or a neutral cleaner. Refer to the <a href="#">Media care</a> section in Chapter 4 for details on cleaning.</p>
Some CD/DVDs run correctly, but others do not	<p>The software or hardware configuration may be causing a problem. Make sure the hardware configuration matches your software's needs. Check the CD/DVD's documentation.</p>

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Check the type of CD/DVD you are using. The drive supports:

DVD-ROM: DVD-ROM, DVD-Video

CD-ROM: CD-DA, CD-Text, Photo CD™ (single/multi-session), CD-ROM Mode 1, Mode 2, CD-ROM XA Mode 2 (Form1, Form2), Enhanced CD (CD-EXTRA), Addressing Method 2

Recordable DVD: DVD-R/+R DL, DVD+R/+R DL, DVD-RW, DVD+RW, DVD-RAM

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Check the region code on the DVD. It must match that on the DVD Super Multi drive. Region codes are listed in the [Optical disc drives](#) section in Chapter 2, The Grand Tour.

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## USB floppy diskette drive

For further information, please refer to Chapter 3, [Hardware, Utilities and Options](#).

Problem	Procedure
Drive does not operate	Check the connection between the computer and the drive to ensure that it is properly attached.
Some programs run correctly but others do not	The computer's software or hardware configuration may be causing a problem - ensure that these configurations match your requirements (refer to any relevant documentation, for example that supplied with any software in use, for further information).
You cannot access the external floppy diskette drive	<p>Try another floppy diskette in the drive - if you are able to access this disk then it indicates the original disk and not the drive is probably causing the problem.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

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## PC Card

For further information, please refer to Chapter 3, [Hardware, Utilities and Options](#).

Problem	Procedure
PC Card error occurs	<p>Remove the PC Card from the computer and then reinsert it in order to ensure it is firmly connected.</p> <hr/> <p>In the event that the PC Card is attached to an external peripheral device, ensure that this connection is properly made.</p> <hr/> <p>If the problem persists, then you should refer to the documentation supplied with your PC Card for further information.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

## SD/SDHC Card

For further information, please refer to Chapter 3, [Hardware, Utilities and Options](#).

Problem	Procedure
SD/SDHC Card error occurs	<p>Remove the SD/SDHC Card from the computer and then reinsert it in order to ensure it is firmly connected.</p> <p>If the problem persists, then you should refer to the documentation supplied with your SD/SDHC Card for further information.</p>
You cannot write to an SD/SDHC Card	<p>Remove the SD/SDHC Card from the computer and check to ensure that it is not write protected.</p>
You cannot read a file	<p>Check to ensure the required file is actually on the SD/SDHC Card that is inserted into the computer.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>



## Dual Pointing device

If you are using a USB mouse, you should also refer to both the [USB device](#) section in this chapter, and the documentation supplied with your mouse.

### Touch Pad/AccuPoint

Problem	Procedure
Either the Touch Pad or the AccuPoint does not work.	<p>Check the Device Select settings.</p> <p>Click <b>Start -&gt; Control Panel -&gt; Hardware and Sound -&gt; Mouse</b> icon.</p> <p>Pressing <b>FN + F9</b> to enables.</p>
On-screen pointer does not respond to pointing device operation	<p>In this instance the system might be busy - Try moving the mouse again after waiting a short while.</p>
Double-tapping (Touch Pad) or double-clicking (AccuPoint) does not work	<p>In this instance, you should initially try changing the double-click speed setting within the Mouse Control utility.</p> <ol style="list-style-type: none"> <li>1. To access this utility, click <b>Start -&gt; Control Panel -&gt; Hardware and Sound -&gt; Mouse</b> icon.</li> <li>2. Within the Mouse Properties window, click the <b>Buttons</b> tab.</li> <li>3. Set the double-click speed as required and click <b>OK</b>.</li> </ol>
The mouse pointer moves too fast or too slow	<p>In this instance, you should initially try changing the speed setting within the Mouse Control utility.</p> <ol style="list-style-type: none"> <li>1. To access this utility, click <b>Start -&gt; Control Panel -&gt; Hardware and Sound -&gt; Mouse</b> icon.</li> <li>2. Within the Mouse Properties window, click the <b>Pointer Options</b> tab.</li> <li>3. Set the pointer speed as required and click <b>OK</b>.</li> </ol> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

Problem	Procedure
The reaction of Touch pad is either too sensitive or not sensitive enough.	<p>Adjust the touch Sensitivity.</p> <ol style="list-style-type: none"> <li>1. Click <b>Start -&gt; Control Panel -&gt; Hardware and Sound -&gt; Mouse</b> icon.</li> <li>2. Within the Mouse Properties window, click the <b>Advanced</b> tab.</li> <li>3. Click the <b>Advanced feature settings</b> button.</li> <li>4. <b>Advanced feature settings</b> is displayed.</li> <li>5. Move the slide of adjust the pointer speed in relation to the standard Windows setting. Click the <b>OK</b> button.</li> <li>6. Click the <b>OK</b> button on <b>Advanced feature setting</b> screen.</li> </ol>

### USB mouse

Problem	Procedure
On-screen pointer does not respond to mouse operation	<p>In this instance the system might be busy - Try moving the mouse again after waiting a short while.</p> <hr/> <p>Remove the mouse from the computer and then reconnect it to a free USB port it in order to ensure it is firmly attached.</p>
Double-clicking does not work	<p>In this instance, you should initially try changing the double-click speed setting within the Mouse Control utility.</p> <ol style="list-style-type: none"> <li>1. To access this utility, click <b>Start -&gt; Control Panel -&gt; Hardware and Sound -&gt; Mouse</b> icon.</li> <li>2. Within the Mouse Properties window, click the <b>Buttons</b> tab.</li> <li>3. Set the double-click speed as required and click <b>OK</b>.</li> </ol>
The mouse pointer moves too fast or too slow	<p>In this instance, you should initially try changing the speed setting within the Mouse Control utility.</p> <ol style="list-style-type: none"> <li>1. To access this utility, click <b>Start -&gt; Control Panel -&gt; Hardware and Sound -&gt; Mouse</b> icon.</li> <li>2. Within the Mouse Properties window, click the <b>Pointer Options</b> tab.</li> <li>3. Set the pointer speed as required and click <b>OK</b>.</li> </ol>

Problem	Procedure
The mouse pointer moves erratically	<p>The elements of the mouse responsible for detecting movement might be dirty - please refer to the documentation supplied with the mouse for instructions on how to clean it.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

## Fingerprint Sensor

Problem	Procedure
Reading of the fingerprint was not successful.	<p>In this instance you should try the fingerprint reading operation again using the correct finger position - please refer to <a href="#">Using the Fingerprint Sensor</a> in Chapter 4, Operating Basics for further information.</p> <p>Alternatively, you should try the recognition process again using another enrolled finger.</p> <p>The fingerprint sensor compares and analyzes the unique characteristics in a fingerprint. However, there may be instances where certain users are unable to register their fingerprints due to insufficient unique characteristics in their fingerprints.</p> <p>The recognition success rate may differ from user to user.</p>
The fingerprint cannot be read due to injuries to the finger.	<p>In this instance you should try the recognition process again using another enrolled finger. However, if fingerprints from all the enrolled fingers cannot be read, you should instead log into the computer by using the keyboard to input the password.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

## USB device

In addition to the information in this section, please also refer to the documentation supplied with your USB device.

Problem	Procedure
USB device does not work	<p>Remove the USB device from the computer and then reconnect it to a free port it in order to ensure it is firmly attached.</p> <hr/> <p>Ensure that any required USB device drivers are properly installed - to achieve this you should refer to both the device documentation and the operating system documentation.</p> <hr/> <p>If you are using an operating system that does not support USB, you are still able to use a USB mouse and/or USB keyboard by setting the <b>USB KB/Mouse Emulation</b> option within the TOSHIBA HW Setup utility to Enabled.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

## Additional memory module

Please also refer to Chapter 3, [Hardware, Utilities and Options](#), for further information on installing and removing memory modules.

Problem	Procedure
<p>If there is a memory malfunction, the power LED will repeatedly flash (on for 0.5 seconds, off for 0.5 seconds) in the following patterns;</p> <p>If there is an error in only slot A or no memory module is inserted in Slot A: orange twice, then green once.</p> <p>If there is an error in Slot B: orange once, then green twice.</p> <p>If there are errors in both Slot A and Slot B: orange twice, then green twice.</p>	<p>In the event of power LED flashes when the computer is turned on you should initially ensure that the installed memory module(s) are compatible with the computer. If you determine that an incompatible module has been installed, you should follow the steps as detailed below:</p> <ol style="list-style-type: none"> <li>1. Turn off the computer.</li> <li>2. Disconnect the AC adaptor and all peripheral devices.</li> <li>3. Remove the battery pack.</li> <li>4. Remove the incompatible memory module.</li> <li>5. Install the battery and/or connect the AC adaptor.</li> <li>6. Turn on the computer.</li> </ol> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

Problem	Procedure
An error will occur if a memory module is inserted into Slot B while no memory module is inserted in Slot A.	Remove the memory module from Slot B and insert it into Slot A.

## Sound system

In addition to the information in this section, please also refer to the documentation supplied with your audio device.

Problem	Procedure
No sound is heard	<p>Adjust the volume control dial.</p> <p>Check the software volume settings.</p> <p>Please check to see if Mute is turned to Off</p> <p>Check to make sure the headphone connection is secure.</p> <p>Check within the Windows Device Manager application to ensure the sound function is enabled and that settings for elements such as I/O port address, interrupt level and DMA channel are correct for your software, and that they do not conflict with any other hardware devices connected to the computer.</p> <p>For further information on these settings, please refer to the documentation supplied with your audio device.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>
Annoying sound is heard	<p>In this instance you may be experiencing feedback from either the internal microphone or an external microphone connected to the computer - please refer to <a href="#">Sound System</a> in Chapter 4, Operating Basics for further information.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

## External monitor

Please also refer to Chapter 3, *Hardware, Utilities and Options*, and to the documentation supplied with your monitor for further information.

Problem	Procedure
Monitor does not turn on	After confirming that the monitor's power switch is on, you should check the connections to make sure that the power cord/adaptor is firmly connected to the monitor and to a working power outlet.
No display	<p>Try adjusting the contrast and brightness controls on the external monitor.</p> <p>Press the <b>FN + F5</b> hot key in order to change the display priority and ensure that it is not set for the internal display only.</p> <p>Check to see if the external monitor is connected.</p> <p>When the external monitor is set as the primary display device in extended desktop mode, it will not display when the computer wakes up from Sleep Mode if the external monitor has been disconnected while in Sleep Mode.</p> <p>To keep this from happening, do not disconnect the external monitor while the computer is in Sleep or Hibernation Mode.</p> <p>Remember to turn off the computer before disconnecting the external monitor.</p> <p>When the display panel and an external monitor are set to clone mode and they are turned off by the timer, the display panel or the external monitor may not display when turned on again.</p> <p>If this occurs, press <b>FN + F5</b> to re-set the display panel and external monitor to clone mode.</p>
Display error occurs	<p>Check that the cable connecting the external monitor to the computer is firmly attached.</p> <p>If you are still unable to resolve the problem, contact your reseller, dealer or service provider.</p>

## i.LINK (IEEE1394) device

Problem	Procedure
i.LINK device does not function	Make sure the cable is securely connected to the computer and to the device.
	Make sure the device's power is turned on.
	Reinstall the drivers. Open the Windows Control Panel and double-click the <b>Add Hardware</b> icon. Follow the on-screen directions.
	Restart Windows.
	If problems persist, contact your dealer.

## Modem

Refer to Appendix C, [AT Commands](#) and Appendix D, [S-registers](#).

Problem	Procedure
Communication software can't initialize modem	Make sure the computer's internal modem settings are correct. Refer to <i>Phone and Modem Properties</i> in the Control Panel.
You can hear a dial tone but can't make a call	If the call is going through a PBX machine, make sure the communication application's tone dial detection feature is disabled. You can also use the ATX command. Refer to Appendix C, <a href="#">AT Commands</a> .
You place a call, but a connection can't be made	Make sure the settings are correct in your communications application.
After making a call you can't hear a ring	Make sure the tone or pulse selection in your communications application is set correctly. You can also use the ATD command. Refer to Appendix C, <a href="#">AT Commands</a> .
Communication is cut off unexpectedly	The computer will automatically cut off communication when connection with the carrier is not successful for a set time interval. Try lengthening this time interval.
A <b>CONNECT</b> display is quickly replaced by <b>NO CARRIER</b>	Check the error control setting in your communications application. You can also use the ATN command. Refer to Appendix C, <a href="#">AT Commands</a> .

Problem	Procedure
Character display becomes garbled during a communication session	In data transmission, make sure the parity bit and stop bit settings correspond with those of the remote computer. Check the flow control and communication protocol.
You cannot receive an incoming call	Check the rings before auto answer setting in your communications application. You can also use the ATSO command. Refer to Appendix D, <a href="#">S-registers</a> . If problems persist, contact your dealer.

## LAN

Problem	Procedure
Cannot access LAN	Check for a firm cable connection between the LAN jack and the LAN hub.
Wake-up on LAN does not work	Make sure the AC adaptor is connected. The Wake-up on LAN function consumes power even when the system is off. If problems persist, consult your LAN administrator.

## Wireless LAN

If the following procedures do not restore LAN access, consult your LAN administrator. For more information on wireless communication, refer to Chapter 4, [Operating Basics](#).

Problem	Procedure
Cannot access Wireless LAN	Make sure the computer's Wireless communication switch is set to on. If problems persist, contact your LAN administrator.

## Bluetooth

For further information on Bluetooth wireless communication, please refer to Chapter 4, [Operating Basics](#).

Problem	Procedure
Cannot access Bluetooth device	Check to ensure the computer's Wireless Communication Switch is set to on.



Check to ensure the Bluetooth Manager application is running on the computer and that power to the external Bluetooth device is turned on.

Check to ensure that no optional Bluetooth Adaptor is installed in the computer - the built-in Bluetooth hardware cannot operate simultaneously with another Bluetooth controller. If you are still unable to resolve the problem, contact your reseller, dealer or service provider.

## Recovery Discs

Problem	Procedure
The following message appears when executing Recovery Disc Creator. <b>"The Recovery Disc Creator can not be launched because there is no recovery partition."</b>	<p>You will see this message if you have previously chosen to remove the partition and are trying to create "Recovery Media".</p> <p>When there is no recovery partition, the Recovery Disc Creator cannot make Recovery Media.</p> <p>However, if you have already created a "Recovery Media", you can use it to restore the recovery partition.</p> <p>Simply follow the instructions in <a href="#">Restoring the pre-installed software from your created Recovery Discs</a> section in Chapter1, Getting Started.</p> <p>You will be directed to select "Restore Original Factory Image" from the drop-down menu.</p> <p>If you have not created "Recovery Media", please contact TOSHIBA support for assistance.</p>

## Disposing of the computer and the computer's batteries

- Discard this computer in accordance with applicable laws and regulations. For further information, contact your local government.
- This computer contains rechargeable batteries. After repeated use, the batteries will finally lose their ability to hold a charge and you will need to replace them. Under certain applicable laws and regulation, it may be illegal to dispose of old batteries by placing them in the trash.
- Please be kind to our shared environment. Check with your local government authority for details regarding where to recycle old batteries or how to dispose of them properly. This product contains mercury. Disposal of this material may be regulated due to environmental considerations. For disposal, reuse or recycling information, please contact your local government.

- If your hard disk drive or other storage media contains sensitive data, you should be aware that standard deletion procedures do not remove data from the media. These standard deletion procedures include:
  - Selecting Delete for a target file
  - Putting files in the Recycle Bin and emptying the Recycle Bin
  - Reformatting the media
  - Reinstalling an operating system from the recovery CD-ROM

The procedures above delete only the initial part of the data used for file management. This makes the file invisible to the operating system, but the data can still be read by specialized utilities. If you dispose of the computer, please delete all the data on its hard disk drive. Doing so prevents unauthorized use of such data. To ensure your data is not used for unauthorized purposes, you can:

- Physically destroy the hard disk drive
- Use a proven specialized utility to overwrite all data
- Take the hard disk drive to a professional deletion service

All data deletion costs will be borne by you.

## TOSHIBA support

If you require any additional help using your computer or if you are having problems operating the computer, you may need to contact TOSHIBA for additional technical assistance.

### Before you call

Some problems you experience may be related to software or the operating system so it is important that you investigate other sources of assistance first. Before contacting TOSHIBA, try the following:

- Review troubleshooting sections in the documentation supplied with your software and/or peripheral devices.
- If a problem occurs when you are running software applications, consult the software documentation for troubleshooting suggestions and consider calling the software company's technical support department for assistance.
- Consult the reseller or dealer from where you purchased your computer and/or software - they are your best resource for current information and support.

## Where to write

If you are still unable to solve the problem and suspect that it is hardware related, write to TOSHIBA at the nearest location listed below:

Outside of Europe	In Europe
<b>Australia</b> TOSHIBA Australia Pty. Ltd. Information Systems Division 84-92 Talavera Road North Ryde N.S.W. 2113 Sydney	<b>Germany &amp; Austria</b> TOSHIBA Europe (I.E.) GmbH Geschäftsbereich, Deutschland-Österreich Hammfelddamm 8, D-41460 Neuss, Germany
<b>Canada</b> TOSHIBA of Canada Ltd. 191 McNabb Street, Markham, Ontario L3R 8H2	<b>France</b> TOSHIBA Systèmes France S.A. 7, Rue Ampère B.P. 131, 92804 Puteaux Cedex
<b>China</b> TOSHIBA Personal Computer & Network (Shanghai) Co., Ltd. 43F, Hong Kong New World Tower, No. 300 Huaihai Zhong Road, Shanghai, P. R. China 200021	<b>Netherlands</b> TOSHIBA Information Systems, Benelux B.V. Rivium Boulevard 41 2909 LK Capelle a/d IJssel
<b>Singapore</b> TOSHIBA Singapore Pte. Ltd. 438B Alexandra Road #06-01 Alexandra Technopark Singapore 119968	<b>Spain</b> TOSHIBA Information Systems, ESPAÑA Parque Empresarial San Fernando Edificio Europa, 1ª Planta, Escalera A 28830 Madrid
<b>United States of America</b> TOSHIBA America Information Systems, Inc. 9740 Irvine Boulevard Irvine, California 92618 USA	<b>United Kingdom</b> TOSHIBA Information Systems (U.K.) Ltd. TOSHIBA Court Weybridge Business Park Addlestone Road Weybridge, Surrey KT15 2UL
	<b>The Rest of Europe</b> TOSHIBA Europe (I.E.) GmbH Geschäftsbereich, Deutschland- Österreich Hammfelddamm 8, D- 41460 Neuss, Germany

## Appendix A

### Specifications

This appendix summarizes the computer's technical specifications.

#### Physical Dimensions

Refer to User Information Guide about Weight and Size.

#### Environmental Requirements

Conditions	Ambient temperature	Relative humidity
Operating	5°C (41°F) to 35°C (95°F)	20% to 80%
Non-operating	-20°C (-4°F) to 65°C (149°F)	10% to 90%
Thermal Gradient	20°C per hour maximum	
Wet-bulb temperature	26°C maximum	
Conditions	Altitude (from sea level)	
Operating	-60 to 3,000 meters	
Non-operating	-60 to 10,000 meters maximum	

## Power Requirements

<b>AC adaptor</b>	100-240 volts AC
	50 or 60 hertz (cycles per second)
<b>Computer</b>	15 V DC
	5.0 amperes

## Built-in Modem

Network control unit (NCU)		
Type of NCU	AA	
Type of line	Telephone line (analog only)	
Type of dialing	Pulse	
	Tone	
Control command	AT commands	
	EIA-578 commands	
Monitor function	Computer's speaker	
Communication specifications		
Communication system	Data:	Full duplex
	Fax:	Half duplex
Communication protocol	Data	
	ITU-T-Rec	V.21/V.22/V.22bis/V.32
	(Former CCITT)	/V.32bis/V.34/V.90
	Bell	103/212A
	Fax	
	ITU-T-Rec	V.17/V.29/V.27ter
(Former CCITT)	/V.21 ch2	

<b>Communication speed</b>	Data transmission and reception 300/1200/2400/4800/7200/9600/12000/14400/16800/19200/21600/24000/26400/28800/31200/33600 bps Data reception only with V.90 28000/29333/30666/32000/33333/34666/36000/37333/38666/40000/41333/42666/44000/45333/46666/48000/49333/50666/52000/53333/54666/56000 bps Fax 2400/4800/7200/9600/12000/14400 bps
<b>Transmitting level</b>	-10 dBm
<b>Receiving level</b>	-10 to -40 dBm
<b>Input/output impedance</b>	600 ohms $\pm 30\%$
<b>Error correcting</b>	MNP class 4 and ITU-T V.42
<b>Data compression</b>	MNP class 5 and ITU-T V.42bis
<b>Power supply</b>	+3.3V (supplied by computer)

## Appendix B

### Display Controller and Video mode

#### Display controller

The display controller interprets software commands into hardware commands that turn particular parts on the screen on or off.



*Due to the display panel's increased resolution, lines may appear broken in when displaying images in full-screen text mode.*

The display controller also controls the video mode and uses industry standard rules to govern the screen resolution and the maximum number of colors that can be displayed at any one time. Therefore, software written for a given video mode will run on any computer that supports that mode.

#### Video mode

Video mode settings are configured via the **Display Properties** dialog.

To open the **Display Properties** dialog, click **Start -> Control Panel -> Appearance and Personalization -> Personalization -> Display Settings**.



*If you are running some applications (for example a 3D application or video playback and so on), you may see some disturbance, flickering or frame dropping on your screen.*

*If that occurs, adjust the resolution of display, lowering it until the screen is displayed properly.*

*You could also disable Windows Aero™ to help correct this situation.*

## Appendix C

### AT Commands

In most cases, you will not need to type AT commands manually. However, there might be some occasions when you will need to do so.

This chapter describes AT commands for data mode. Fax and voice commands are taken care of by application software.

The format for entering AT commands is:

**ATXn**

where **X** is the AT command, and **n** is the specific value for that command. After you type in the command press **ENTER**.

Any command issued is acknowledged with a response in either text or numeric values known as result codes.

All commands and command-values accepted by the modem are described in this section; any entry other than those listed results in an error.

#### +++ Escape sequence

The escape sequence allows the modem to exit data mode and enter on-line command mode. While in on-line command mode, you can communicate directly to your modem using AT commands. Once you finish, you can return to data mode using the ATO command.

A pause, the length of which is set by Escape Guard Time (S12), must be completed after an escape sequence is entered. This pause prevents the modem from interpreting the escape sequence as data.

The value of the escape sequence character may be changed using register S2.

#### A/ Repeat last command

This command repeats the last command string entered. Do not precede this command with an AT prefix or conclude it by pressing **ENTER**.



## A Answer command

This command instructs the modem to go off-hook and answer an incoming call.

## Bn Communication standard setting

This command determines the communication standard CCITT or Bell.

**B0** Selects CCITT V.22 mode when the modem is at 1200 bps.

**B1** Selects Bell 212A when the modem is at 1200 bps (default).

**B15** Selects V.21 when the modem is at 300 bps.

**B16** Selects Bell 103J when the modem is at 300 bps (default).

Result Codes:

**OK** n=0,1,15,16

**ERROR** Otherwise

## Dn Dial

This command instructs the modem to dial a telephone number. Enter **n** (the telephone number and any modifiers) after the ATD command.

Any digit or symbol (0-9, \*, #, A, B, C, D) may be dialed as touch-tone digits. Characters such as spaces, hyphens, and parentheses do not count. They are ignored by the modem, but you may want to include them to make the number and modifiers easier to read.

The following may be used as phone number modifiers:

**P** Pulse dialing.

**T** Touch-tone dialing (default).

**,** Pause during dialing. Pause for time specified in Register S8 before processing the next character in the dial string.

**W** Wait for dial tone. Modem waits for a second dial tone before processing the dial string.

**@** Wait for quiet answer. Wait for five seconds of silence after dialing the number. If silence is not detected, the modem sends a NO ANSWER result code back to the caller.

**!** Hook flash. Causes the modem to go on-hook for 0.5 seconds and then return to off-hook.

**;** Return to command mode. Causes the modem to return to command mode after dialing a number, without disconnecting the call.

**S=n** Dial a telephone number previously stored using the **&Zn=X** command (See **&Zn=X** command for more information). The range is 0-3.

## En Echo command

This command controls whether or not the characters entered from your computer keyboard are displayed on your monitor (echoed) while the modem is in command mode.

**E0** Disables echo to the computer.  
**E1** Enables echo to the computer (default).  
 Result Codes:  
**OK** n=0,1  
**ERROR** Otherwise

## **Hn Hook control**

This command instructs the modem to go on-hook to disconnect a call, or off-hook to make the phone line busy.

**H0** Modem goes on-hook (default).  
**H1** Modem goes off-hook.  
 Result Codes:  
**OK** n=0,1  
**ERROR** Otherwise

## **In Request ID information**

This command displays product information about the modem.

**I0** Returns modem identity string and driver version number.  
**I3** Same as **I0**.  
**I9** Returns region ID in English.  
 Result Codes:  
**OK** n=0,3,9  
**ERROR** Otherwise

## **Ln Monitor speaker volume**

This command sets speaker volume to low, medium, or high.

**L0** Low volume.  
**L1** Low volume. (Same as **L0**)  
**L2** Medium volume (default).  
**L3** High volume.  
 Result Codes:  
**OK** n=0,1,2,3  
**ERROR** Otherwise

## **Mn Monitor speaker mode**

This command turns the speaker on or off.

**M0** The speaker is off.  
**M1** The speaker is on until the modem detects the carrier signal (default).  
**M2** The speaker is always on when modem is off-hook.  
**M3** Speaker is on until the carrier is detected, except when dialing.

Result Codes:  
**OK** n=0,1,2,3  
**ERROR** Otherwise

## Nn Modulation handshake

This command controls whether or not the local modem performs a negotiated handshake at connection time with the remote modem when the communication speed of the two modems is different.

**N0** When originating or answering, this is for handshake only at the communication standard specified by S37 and the ATB command.

**N1** When originating or answering, begin the handshake at the communication standard specified by S37 and the ATB command (default).

During handshake, a lower transmission speed may be selected.

Result Codes:  
**OK** n=0,1  
**ERROR** Otherwise

## On Return on-line to data mode

**O0** Instructs the modem to exit on-line command mode and return to data mode (see AT escape sequence, +++).

**O1** This command issues a retrain before returning to on-line data mode.

**O3** This command issues a rate renegotiation before returning to on-line data mode.

Result Codes:  
**OK** n=0,1,3  
**ERROR** Otherwise

## P Select pulse dialing

This command configures the modem for pulse (non touch-tone) dialing. Dialed digits are pulsed until a T command or dial modifier is received. Tone dial is the default setting.

## Qn Result code control

Result codes are informational messages sent from the modem and displayed on your monitor. Basic result codes are **OK**, **CONNECT**, **RING**, **NO CARRIER**, and **ERROR**. The ATQ command allows the user to turn result codes on or off.

**Q0** Enables modem to send result codes to the computer (default).

**Q1** Disables modem from sending result codes to the computer.

Result Codes:  
**OK** n=0,1  
**ERROR** Otherwise

**T      Select tone dialing**

This command instructs the modem to send DTMF tones while dialing. Dialed digits are tone dialed until a P command or dial modifier is received. This is the default setting.

**Vn     DCE response format**

This command controls whether result codes (including call progress and negotiation progress messages) are displayed as words or their numeric equivalents.

- V0**      Displays result codes as digits.
- V1**      Displays result codes as text (default).

Result Codes:  
**OK** n=0,1  
**ERROR** Otherwise

**Xn     Result code selection, call progress monitoring**

This command selects which result codes will be used by the modem.

Command	Dial tone detect	Busy signal detect	Supported Result Code
X0	Disable	Disable	OK, CONNECT, RING, NO CARRIER, ERROR
X1	Disable	Disable	OK, RING, NO CARRIER, ERROR, CONNECT <RATE>
X2	Enable	Disable	OK, RING, NO CARRIER, ERROR, NODIALTONE, CONNECT <RATE>
X3	Disable	Enable	OK, RING, NO CARRIER, ERROR, BUSY, CONNECT <RATE>, BLACKLISTED
X4 (default)	Enable	Enable	OK, RING, NO CARRIER, ERROR, NODIALTONE, BUSY, CONNECT <RATE>, DELAYED, BLACKLISTED, REORDER, WARBLE, CALL WAITING DETECTED
X5	Enable	Enable	OK, RING, NO CARRIER, ERROR, NODIALTONE, BUSY, CONNECT <RATE>, RRING, NO BONGTONE, DELAYED, BLACKLISTED, REORDER, WARBLE, CALL WAITING DETECTED

## Dial tone detect

Disabled: The modem dials a call regardless of whether it detects a dial tone.

Enabled: The modem dials only upon detection of a dial tone, and disconnects the call if the dial tone is not detected within 10 seconds.

## Busy tone detect

Disabled: The modem ignores any busy tones it receives.

Enabled: The modem monitors for busy tones.

Result Codes:

**OK** n=0,1,2,3,4,5

**ERROR** Otherwise

## Zn Recall stored profile

The modem performs a soft reset and restores (recalls) the configuration profile according to the parameter supplied. If no parameter is specified, zero is assumed. Either Z0 or Z1 restores the profile.

Result Codes:

**OK** n=0,1

**ERROR** Otherwise

## &Cn Data Carrier Detect (DCD) control

Data Carrier Detect is a signal from the modem to the computer indicating that a carrier signal is being received from a remote modem. DCD normally turns off when the modem no longer detects the carrier signal.

**&C0** The state of the carrier from the remote modem is ignored. DCD circuit is always on.

**&C1** DCD turns on when the remote modem's carrier signal is detected, and off when the carrier signal is not detected (default).

Result Codes:

**OK** n=0,1

**ERROR** Otherwise

## &Dn DTR control

This command interprets how the modem responds to the state of the DTR signal and changes to the DTR signal.

**&D0** Ignore. The modem ignores the true status of DTR and treats it as always on. This should only be used if your communication software does not provide DTR to the modem

**&D1** If the DTR signal is not detected while in on-line data mode, the modem enters command mode, issues an **OK** result code, and remains connected.

**&D2** If the DTR signal is not detected while in on-line data mode, the modem disconnects (default).

**&D3** Reset on the on-to-off DTR transition.

Result Codes:

**OK** n=0,1,2,3

**ERROR** Otherwise

## **&F Load factory settings**

This command loads the configuration stored and programmed at the factory. This operation replaces all of the command options and the S-register settings in the active configuration with factory values.

**&F** Recall factory setting as active configuration.

## **&Gn V.22bis guard tone control**

This command determines which guard tone, if any, to transmit while transmitting in the high band (answer mode). This command is only used in V.22 and V.22bis mode. This option is not used in North America and is for international use only.

**&G0** Guard tone disabled (default).

**&G1** Sets guard tone to 550 Hz.

**&G2** Sets guard tone to 1800 Hz.

Result Codes:

**OK** n=0,1,2

**ERROR** Otherwise

## **&Kn Local flow control selection**

**&K0** Disable flow control.

**&K3** Enable CTS/RTS flow control (default).

**&K4** Enable XON/XOFF flow control.

Result Codes:

**OK** n=0,3,4

**ERROR** Otherwise

## **&Pn Select Pulse Dial Make/Break Ratio (WW)**

**&P0** Selects 39% - 61% make/break ratio at 10 pulses per second.

**&P1** Selects 33% - 67% make/break ratio at 10 pulses per second.

**&P2** Selects 33% - 67% make/break ratio at 20 pulses per second.

Result Codes:

**OK** n=0,1,2

**ERROR** Otherwise

## &Tn Self-test commands

These tests can help to isolate problems if you experience periodic data loss or random errors.

**&T0** Abort. Stops any test in progress.

**&T1** Local analog loop. This test verifies modem operation, as well as the connection between the modem and computer. Any data entered at the local DTE is modulated, then demodulated, and returned to the local DTE. To work properly, the modem must be off-line.

Result Codes:

**OK** $n=0$

**CONNECT** $n=1$

**ERROR** Otherwise

## &V Display Current Configuration

This command displays the current configuration of the modem. If nonvolatile memory is supported the stored profiles are displayed as well.

**&V** View profiles.

## &W Store current configuration

Saves the current (active) configuration (profile), including S-Registers.

The current configuration comprises a list of storable parameters illustrated in the **&V** command. These settings are restored to the active configuration upon receiving a **Zn** command or at power up. Refer to the **&V** command.

**&W** Stores the current configuration.

## &Zn=x Store telephone number

This command is used to store up to four dialing strings in the modem's nonvolatile memory for later dialing. The format for the command is **&Zn**="stored number" where  $n$  is the location 0-3 to which the number should be written. The dial string may contain up to 34 characters. The **ATDS=n** command dials using the string stored in location  $n$ .

Result Codes:

**OK**  $n=0, 1, 2, 3$

**ERROR** Otherwise

## \Nn Error control mode selection

This command determines the type of error control used by the modem when sending or receiving data.

**\N0** Buffer mode. No error control.

**\N1** Direct mode.

**\N2** MNP or disconnect mode. The modem attempts to connect using MNP2-4 error control procedures. If this fails, the modem disconnects.

This is also known as MNP reliable mode.

**\N3** V.42, MNP, or buffered (default).  
 The modem attempts to connect in V.42 error control mode. If this fails, it attempts to connect in MNP mode. If this fails, it connects in buffer mode and continues operation. This is also known as V.42/MNP auto reliable mode (same as **&Q5**).

**\N4** V.42 or disconnect. The modem attempts to connect in V.42 error control mode. If this fails, the modem disconnects.

**\N5** V.42. MNP or buffered (same as **\N3**).

**\N7** V.42. MNP or buffered (same as **\N3**).

Result Codes:

**OK** n=0,1,2,3,4,5,7

**ERROR** Otherwise

## **\Qn Local flow control selection**

**\Q0** Disable flow control.

**\Q1** XON/XOFF software flow control.

**\Q3** CTS/RTS to DTE (default).

Result Codes:

**OK** n=0,1,3

**ERROR** Otherwise

## **\Vn Protocol result code**

**\V0** Disable protocol result code appended to DCE speed.

**\V1** Enable protocol result code appended to DCE speed (default).

Result Codes:

**OK** n=0,1

**ERROR** Otherwise

## **%B View numbers in blacklist**

If blacklisting is in effect, this command displays the numbers for which the last call attempted in the past two hours failed. The **ERROR** result code appears in regions that do not require blacklisting.

## **%Cn Data compression control**

This command determines the operation of V.42bis and MNP class 5 data compression. On-line changes do not take effect until a disconnect occurs first.

**%C0** V.42bis/MNP 5 disabled. No data compression.

**%C3** V.42bis/MNP 5 enabled. Data compression enabled (default).

Result Codes:

**OK** n=0,3

**ERROR** Otherwise



# Appendix D

## S-registers

S-registers contain the settings that determine how a number of functions of the internal modem operate. For example, how many times to let the telephone ring before the modem answers and how long to wait before it hangs up if a connection fails. You can also customize certain AT commands such as the escape sequence and command line termination.

The contents of the registers are changed automatically when you modify corresponding settings in your communication software. If you choose, however, you can display and edit the contents of the registers manually when the modem is in command mode. If the value is out of the acceptable range, then an error is generated.

This chapter describes the settings for each S-register.

### S-register values

The format for displaying the value of an S-register is:

**ATSn?**

where **n** is the register number. After you type in the register press **ENTER**.

The format for modifying the value of an S-register is:

**ATSn=r**

where **n** is the register number, and **r** is the new register value. After you type in the register and its new value press **ENTER**.



*Some registers vary from one country/region to another.*

#### **S0** Auto answer ring number

This register determines the number of rings the modem will count before automatically answering a call. Enter 0 (zero) if you do not want the modem to automatically answer at all. When disabled, the modem can only answer with an ATA command.

Range:0-255

Default:0

Units:rings

## **S1    Ring counter**

This register is read only. The value of S1 is incremented with each ring. If no ring occurs over a six-second interval, this register is cleared.

Range:0-225

Default:0

Units:rings

## **S2    AT escape character (user defined)**

This register determines the ASCII values used for an escape sequence. The default is the + character. The escape sequence allows the modem to exit data mode and enter command mode when on-line. Values greater than 127 disable the escape sequence.

Range:0-255, ASCII decimal

Default:43

Units:ASCII

## **S3    Command line termination character (user defined)**

This register determines the ASCII values as the carriage return character. This character is used to end command lines and result codes.

Range:0-127, ASCII decimal

Default:13 (carriage return)

Units:ASCII

## **S4    Response formatting character (user defined)**

This register determines the ASCII value used as the line feed character. The modem uses a line feed character in command mode when it responds to the computer.

Range:0-127, ASCII decimal

Default:10 (line feed)

Units:ASCII

## **S5 Command line editing character (user defined)**

This register sets the character recognized as a backspace and pertains to asynchronous only. The modem will not recognize the backspace character if it is set to a value that is greater than 32 ASCII. This character can be used to edit a command line. When the echo command is enabled, the modem echoes back to the local DTE the backspace character, an ASCII space character, and a second backspace character. This means a total of three characters are transmitted each time the modem processes the backspace character.

Range:0-127, ASCII decimal

Default:8 (backspace)

Units:ASCII

## **S6 Wait before dialing**

This register sets the length of time, in seconds, that the modem must wait (pause) after going off-hook before dialing the first digit of the telephone number. The modem always pauses for a minimum of two seconds, even if the value of S6 is less than two seconds. The wait for dial tone call progress feature (W dial modifier in the dial string) will override the value in register S6. This operation, however, may be affected by some ATX options according to country/region restrictions. In some countries/regions, S6 will set dial tone detect time.

Range:3-255

Default:3

Units:seconds

## **S7 Connection completion time-out**

This register sets the time, in seconds, that the modem must wait before hanging up because carrier is not detected. The timer is started when the modem finishes dialing (originate), or goes off-hook (answer). In originate mode, the timer is reset upon detection of an answer tone if allowed by county restriction. The timer also specifies the wait for silence time for the @ dial modifier in seconds. S7 is not associated with the W dial modifier.

Range:1-255

Default:50

Units:seconds

## S8 Comma pause time

This register sets the time, in seconds, that the modem must pause when it encounters a comma (,) in the dial command string. In some countries/regions, S8 will set both wait before dialing and comma pause time.

Range:0-255

Default:2

Units:seconds

## S11 DTMF dialing speed

This register determines the dialing speed which is prefixed for each country/region.

Range:50-255

Default:95

Units:.001 seconds

## S12 Escape guard time

This register sets the value (in 20 millisecond increments) for the required pause after the escape sequence.

Range:0-255

Default:50

Units:.02 seconds

## S37 Dial line rate

S37 = 0 (default)	maximum modem speed
S37 = 1	reserved
S37 = 2	1200/75 bps
S37 = 3	300 bps
S37 = 4	reserved
S37 = 5	1200 bps
S37 = 6	2400 bps
S37 = 7	4800 bps
S37 = 8	7200 bps
S37 = 9	9600 bps

S37 = 10	12000 bps
S37 = 11	14400 bps
S37 = 12	16800 bps
S37 = 13	19200 bps
S37 = 14	21600 bps
S37 = 15	24000 bps
S37 = 16	26400 bps
S37 = 17	28800 bps
S37 = 18	31200 bps
S37 = 19	33600 bps

## AT command set result codes

The following table shows the result codes.

### *The result code summary*

Result Code	Numeric	Description
OK	0	Command executed
CONNECT	1	Modem connected to line
RING	2	A ring signal has been detected
NO CARRIER	3	Modem lost carrier signal, or does not detect carrier signal, or does not detect answer tone
ERROR	4	Invalid command
CONNECT 1200 EC* <sub>1</sub>	5	Connection at 1200 bps
NO DIAL TONE	6	No dial tone detected
BUSY	7	Busy signal detected
NO ANSWER	8	No quiet answer
CONNECT 2400 EC* <sub>1</sub>	10	Connection at 2400 bps

CONNECT 4800 EC* <sub>1</sub>	11	Connection at 4800 bps
CONNECT 9600 EC* <sub>1</sub>	12	Connection at 9600 bps
CONNECT 14400 EC* <sub>1</sub>	13	Connection at 14400 bps
CONNECT 19200 EC* <sub>1</sub>	14	Connection at 19200 bps
CONNECT 7200 EC* <sub>1</sub>	24	Connection at 7200 bps
CONNECT 12000 EC* <sub>1</sub>	25	Connection at 12000 bps
CONNECT 16800 EC* <sub>1</sub>	86	Connection at 16800 bps
CONNECT 300 EC* <sub>1</sub>	40	Connection at 300 bps
CONNECT 21600 EC* <sub>1</sub>	55	Connection at 21600 bps
CONNECT 24000 EC* <sub>1</sub>	56	Connection at 24000 bps
CONNECT 26400 EC* <sub>1</sub>	57	Connection at 26400 bps
CONNECT 28800 EC* <sub>1</sub>	58	Connection at 28800 bps
CONNECT 31200 EC* <sub>1</sub>	59	Connection at 31200 bps
CONNECT 33600 EC* <sub>1</sub>	60	Connection at 33600 bps
DELAYED* <sub>2</sub>	88	Delay is in effect for the dialed number
BLACKLISTED* <sub>2</sub>	89	Dialed number is blacklisted
BLACKLIST FULL* <sub>2</sub>	90	Blacklist is full

*\*1: EC only appears when the Extended Result Codes configuration option is enabled. EC is replaced by one of the following symbols, depending upon the error control method used:*

*V.42bis - V.42 error control and V.42bis data compression.*

*V.42 - V.42 error control only.*

*MNP 5 - MNP class 4 error control and MNP class 5 data compression.*

*MNP 4 - MNP class 4 error control only.*

*NoEC - No error control protocol.*

*\*2: In some countries/regions, these result codes may not appear.*

# Appendix E

## V.90

The TOSHIBA internal modem uses V.90 technology. The modem is capable of downstream speeds of 56kbps (kilobits per second) when connected to an Internet service provider that supports V.90. As with any modem, the actual throughput (speed of data transfer) depends on analog telephone line conditions, which can vary considerably. Therefore, many users will experience throughput in the range of 28-50kbps under normal telephone line conditions. Upstream data flows at the V.34 rate.



*V.90 rates can be achieved only when one V.90-capable host modem is connected to another. The TOSHIBA Internal modem will select automatically V.34 if the remote modem lacks V.90 capability or if a combination of network and/or phone line conditions prevent V.90 connection.*

## V.90 mode

Function	Transmission speed
Data V.90	From 56kbps (maximum) to 28kbps (minimum) Reception only

**Table E-1 Result codes for a V.90 connection**

No.	Result code	Description
70	CONNECT 32000 EC*	Connection at 32000 bps
72	CONNECT 36000 EC*	Connection at 36000 bps
74	CONNECT 40000 EC*	Connection at 40000 bps
76	CONNECT 44000 EC*	Connection at 44000 bps
78	CONNECT 48000 EC*	Connection at 48000 bps
80	CONNECT 52000 EC*	Connection at 52000 bps
82	CONNECT 56000 EC*	Connection at 56000 bps
100	CONNECT 28000 EC*	Connection at 28000 bps
101	CONNECT 29333 EC*	Connection at 29333 bps
102	CONNECT 30666 EC*	Connection at 30666 bps
103	CONNECT 33333 EC*	Connection at 33333 bps
104	CONNECT 34666 EC*	Connection at 34666 bps
105	CONNECT 37333 EC*	Connection at 37333 bps
106	CONNECT 38666 EC*	Connection at 38666 bps
107	CONNECT 41333 EC*	Connection at 41333 bps
108	CONNECT 42666 EC*	Connection at 42666 bps
109	CONNECT 45333 EC*	Connection at 45333 bps
110	CONNECT 46666 EC*	Connection at 46666 bps
111	CONNECT 49333 EC*	Connection at 49333 bps
112	CONNECT 50666 EC*	Connection at 50666 bps
113	CONNECT 53333 EC*	Connection at 53333 bps
114	CONNECT 54666 EC*	Connection at 54666 bps



\* EC stands for the Error Control method, which appears only when the extended result codes configuration option is enabled. EC is replaced by one of the following symbols, depending on the error control method used.

<b>V42bis</b>	V.42 error control and V.42bis data compression
<b>V42</b>	V.42 error control only
<b>NoEC</b>	No error control protocol

## AT Command

<b>-V90=*</b>	V.90 Dial Line Rate -V90 sets the maximum V.90 downstream that the modem attempts to connect.
<b>-V90=0</b>	V.90 disabled
<b>-V90=1</b>	V.90 enabled: automatic speed selection - maximum modem speed (default)

# Appendix F

## Wireless LAN

This appendix is intended to help you get your Wireless LAN network up and running, with a minimum of parameters.

### Card Specifications

<b>Form Factor</b>	PCI Express Mini Card
<b>Compatibility</b>	<ul style="list-style-type: none"><li>■ IEEE 802.11 Standard for Wireless LANS</li><li>■ Wi-Fi (Wireless Fidelity) certified by the Wi-Fi Alliance. The 'Wi-Fi CERTIFIED' logo is a certification mark of the Wi-Fi Alliance.</li></ul>
<b>Network Operating System</b>	<ul style="list-style-type: none"><li>■ Microsoft Windows® Networking</li></ul>
<b>Media Access Protocol</b>	<ul style="list-style-type: none"><li>■ CSMA/CA (Collision Avoidance) with Acknowledgment (ACK)</li></ul>

## Radio Characteristics

Radio Characteristics of Wireless LAN Cards may vary according to:

- Country/region where the product was purchased
- Type of product

Wireless communication is often subject to local radio regulations. Although Wireless LAN wireless networking products have been designed for operation in the license-free 2.4GHz and 5GHz band, local radio regulations may impose a number of limitations to the use of wireless communication equipment.



*Refer to the sheet "Information to the User" for regulatory information that may apply in your country/region.*

---

### R-F Frequency

- Band 5GHz (5150-5850 MHz) (Revision A, N Draft Ver. 1.0)
  - Band 2.4GHz (2400-2483.5 MHz) (Revision B, G, N Draft Ver. 1.0)
- 

The range of the wireless signal is related to the transmit rate of the wireless communication. Communications at lower transmit range may travel larger distances.

- The range of your wireless devices can be affected when the antennas are placed near metal surfaces and solid high-density materials.
- Range is also impacted due to "obstacles" in the signal path of the radio that may either absorb or reflect the radio signal.

## Supported Frequency Sub-bands

Subject to the radio regulations that apply in the countries/regions, your Wireless LAN card may support a different set of 5 GHz/2.4 GHz channels. Consult your Authorized Wireless LAN or TOSHIBA Sales office for information about the radio regulations that apply in the countries/regions.

### Wireless IEEE 802.11 Channels Sets (Revision B, G and N Draft Ver. 1.0)

Frequency Range Channel ID	2400-2483.5 MHz
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	<b>2457</b> *1
11	2462
12	<b>2467</b> *2
13	<b>2472</b> *2

\*1 Factory-set default channels

\*2 Refer to the sheet *Approved Countries/Regions for use* for the countries/regions that in which these channels can be used. When installing Wireless LAN cards, the channel configuration is managed as follows:

- For wireless clients that operate in a Wireless LAN Infrastructure, the Wireless LAN card will automatically start operation at the channel identified by the Wireless LAN Access Point. When roaming between different access points the station can dynamically switch to another channel if required.
- For Wireless LAN cards installed in wireless clients that operating in a peer-to-peer mode, the card will use the default channel 10.

- In a Wireless LAN Access Point, the Wireless LAN card will use the factory-set default channel (printed in bold), unless the LAN Administrator selected a different channel when configuring the Wireless LAN Access Point device.

### Wireless IEEE 802.11 Channels Sets (Revision A and N Draft Ver. 1.0)

Frequency Range <b>Channel ID</b>	5150-5850 MHz
36	5180
40	5200
44	5220
48	5240
52	5260
56	5280
60	5300
64	5320
100	5500
104	5520
108	5540
112	5560
116	5580
120	5600
124	5620
128	5640
132	5660
136	5680
140	5700
149	5745
153	5765
157	5785

161	5805
165	5825

# Appendix G

## Intel® Matrix Storage Manager

If you are installing the operating system on a computer system which is configured for AHCI mode, you must pre-install the Intel® Matrix Storage Manager driver using the F6 installation method described in the [Manually Setting up Windows \(Windows Vista™\)](#) or [Manually Setting up Windows Manually \(Windows XP\)](#) sections.



*This model does not support RAID functionality.*

If you have already installed the operating system on a system configured for AHCI mode, double-click iata\_cd.exe and respond to each of the prompts in order to install the Intel® Matrix Storage Manager.

All installed files (readme.txt, help, etc.) are copied to the following path by default:

```
<bootdrive>\Program Files\Intel\Intel Matrix Storage Manager
```

## Manually Setting up Windows (Windows Vista™)

Use the following procedures to manually set up your Windows operating system.

### Before Setting up Windows

Before setting up Windows, create an Intel® Matrix Storage Manager Disk.

### Creating an Intel® Matrix Storage Manager Disk

1. Connect the USB floppy diskette drive and insert a floppy diskette.
2. Copy all of the files located in the "**C:\TOSAPINS\Intel Matrix Storage Manager\Inf setup**" folder to the floppy diskette.

## Windows Setup Procedure

1. Connect the USB floppy diskette drive and insert the above disk.
2. Insert the Windows Setup DVD into the optical disc drive and boot the computer from the DVD. The Windows Setup program will start.
3. Carry out the setup process by following the instructions displayed on the setup screen. When the message "**which type of installation do you want?**" appears, select **Custom (advanced)**.
4. When the message "**Where do you want to install Windows?**" appears, click **Load Driver**.
5. Click the **Browse** button and then select **Floppy Disk Drive(A:)**.
6. Select "**Intel(R) 82801HEM/HBM SATA AHCI Controller**" from the list that appear, and click **Next**.
7. When the message "**Where do you want to install Windows?**" appears again, select the destination drive and then click **Next**.
8. Continue to follow the onscreen instructions to finish installing windows.



- *Please use only hard disk drives that the computer supports. The system may not function correctly if unsupported hard disk drives are used.*
- *Errors may occur in the following situations:*
  - *When using applications which directly access the hardware and read from or write to the hard disk drive.*
  - *When using another operating system, such as Linux, to run application that read from or right to the hard disk drive.*

## Manually Setting up Windows Manually (Windows XP)

Use the following procedures to manually set up your Windows operating system.

### Before Setting up Windows

Before setting up Windows, create an Intel® Matrix Storage Manager Disk.

### Creating the Intel® Matrix Storage Manager Disk

1. Connect the USB floppy diskette drive and insert a floppy diskette.
2. Copy all of the files located in the "**C:\TOSAPINS\Intel Matrix Storage Manager\Inf setup**" folder to the floppy diskette.

### Windows Setup Procedure

1. Connect the USB floppy diskette drive and insert the disk created in the previous step.
2. Insert the Windows Setup CD-ROM into the optical disc drive and boot the computer up from the CD. The Windows Setup program will start.



3. When the message "Press F6 if you need to install a third party SCSI or RAID driver" appears on the screen, press the **F6** key.
4. When the message "Setup will load support for the following mass storage device(s):" appears on the screen, press the **S** key.
5. Select "Intel(R) 82801HEM/HBM SATA AHCI Controller (Mobile ICH8M-E/M)" and press the **ENTER** key.
6. Follow the onscreen instructions to continue setting up windows.



- *Please use only hard disk drives that the computer supports. The system may not function correctly if unsupported hard disk drives are used.*
- *Errors may occur in the following situations:*
  - *When using applications which directly access the hardware and read from or write to the hard disk drive.*
  - *When using another operating system, such as Linux, to run application that read from or right to the hard disk drive.*

## How to install Intel® Matrix Storage Manager on Windows XP or Windows Vista™:

To install this software on Windows XP or Windows Vista™ logon with an account that has administrator user privileges.

1. Double-click the Intel® Matrix Storage Manager setup file ("iata\_cd.exe") located in the C:\TOSAPINS\Intel Matrix Storage Manager folder.
2. Follow the onscreen installation instructions.
3. Restart the system.

## Appendix H

### Bluetooth wireless technology Interoperability

Bluetooth® Cards from TOSHIBA are designed to be interoperable with any product with Bluetooth wireless technology that is based on Frequency Hopping Spread Spectrum (FHSS) radio technology, and is compliant to:

- Bluetooth Specification Ver. 2.0+EDR, as defined and approved by The Bluetooth Special Interest Group.
- Logo certification with Bluetooth wireless technology as defined by The Bluetooth Special interest Group.



- *Bluetooth wireless technology is a new innovative technology, and TOSHIBA has not confirmed compatibility of its Bluetooth® products with all computers and/or equipment using Bluetooth wireless technology other than TOSHIBA portable computers.  
Always use Bluetooth® Cards from TOSHIBA in order to enable wireless networks over two or more (up to a total of seven) TOSHIBA portable computers using these cards. Please contact TOSHIBA PC product support on Web site  
<http://www.toshiba-europe.com/computers/tnt/bluetooth.htm> in Europe or  
<http://www.pc.support.global.toshiba.com> in the United States for more information.*
- *When you use Bluetooth® Cards from TOSHIBA close to 2.4 GHz Wireless LAN devices, Bluetooth transmissions might slow down or cause errors. If you detect certain interference while you use Bluetooth® Cards from TOSHIBA, always change the frequency, move your computer to the area outside of the interference range of 2.4 GHz Wireless LAN devices (40 meters/43.74 yards or more) or stop transmitting from your computer. Please contact TOSHIBA PC product support on Web site  
<http://www.toshiba-europe.com/computers/tnt/bluetooth.htm> in Europe or  
<http://www.pc.support.global.toshiba.com> in the United States for more information.*
- *Bluetooth® and Wireless LAN devices operate within the same radio frequency range and may interfere with one another. If you use Bluetooth® and Wireless LAN devices simultaneously, you may occasionally experience a less than optimal network performance or even lose your network connection.  
If you should experience any such problem, immediately turn off either one of your Bluetooth® or Wireless LAN.  
Please contact TOSHIBA PC product support on web site  
<http://www.toshiba-europe.com/computers/tnt/bluetooth.htm> in Europe or  
<http://www.pc.support.global.toshiba.com> in the United States for more information.*

## Bluetooth wireless technology and your Health

The products with Bluetooth wireless technology, like other radio devices, emit radio frequency electromagnetic energy. The level of energy emitted by devices with Bluetooth wireless technology however is far much less than the electromagnetic energy emitted by wireless devices like for example mobile phones.

Because products with Bluetooth wireless technology operate within the guidelines found in radio frequency safety standards and recommendations, TOSHIBA believes Bluetooth wireless technology is safe for use by consumers. These standards and recommendations reflect the consensus of the scientific community and result from deliberations of panels and committees of scientists who continually review and interpret the extensive research literature.

In some situations or environments, the use of Bluetooth wireless technology may be restricted by the proprietor of the building or responsible representatives of the organization. These situations may for example include:

- Using the equipment with Bluetooth wireless technology on board of airplanes, or
- In any other environment where the risk of interference to other devices or services is perceived or identified as harmful.

If you are uncertain of the policy that applies on the use of wireless devices in a specific organization or environment (e.g. airports), you are encouraged to ask for authorization to use the device with Bluetooth wireless technology prior to turning on the equipment.

## Regulatory statements

### General

This product complies with any mandatory product specification in any country/region where the product is sold. In addition, the product complies with the following.

### European Union (EU) and EFTA

This equipment complies with the R&TTE directive 1999/5/EC and has been provided with the CE mark accordingly.

### Canada - Industry Canada (IC)

This device complies with RSS 210 of Industry Canada.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

L' utilisation de ce dispositif est autorisée seulement aux conditions suivantes: (1) il ne doit pas produire de brouillage et (2) l' utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

The term "IC" before the equipment certification number only signifies that the Industry Canada technical specifications were met.

## **USA-Federal Communications Commission (FCC)**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by tuning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the distance between the equipment and the receiver.
- Connect the equipment to outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

TOSHIBA is not responsible for any radio or television interference caused by unauthorized modification of the devices included with this Bluetooth® Card from TOSHIBA, or the substitution or attachment of connecting cables and equipment other than specified by TOSHIBA.

The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

## Caution: Exposure to Radio Frequency Radiation

The radiated output power of the Bluetooth® Card from TOSHIBA is far below the FCC radio frequency exposure limits. Nevertheless, the Bluetooth® Card from TOSHIBA shall be used in such a manner that the potential for human contact during normal operation is minimized. The antenna(s) used in this device are located at the upper edge of the LCD screen, and this device has been tested as portable device as defined in Section 2.1093 of FCC rules when the LCD screen is rotated 180 degree and covered the keyboard area. In addition, Bluetooth has been tested with Wireless LAN transceiver for co-location requirements. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter. The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website [www.hc-sc.gc.ca/rpb](http://www.hc-sc.gc.ca/rpb).

## Taiwan

- Article 12     Without permission granted by the DGT, any company, enterprise, or user is not allowed to change frequency, enhance transmitting power or alter original characteristic as well as performance to an approved low power radio-frequency devices.
- Article 14     The low power radio-frequency devices shall not influence aircraft security and interfere legal communications; If found, the user shall cease operating immediately until no interference is achieved.
- The said legal communications means radio communications is operated in compliance with the Telecommunications Act.
- The low power radio-frequency devices must be susceptible with the interference from legal communications or ISM radio wave radiated devices.

## Using Bluetooth® Card from TOSHIBA equipment in Japan

In Japan, the frequency bandwidth of 2,400 - 2,483.5 MHz for second generation low-power data communication systems such as this equipment overlaps that of mobile object identification systems (premises radio station and specified low-power radio station).

### 1. Sticker

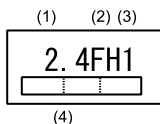
Please put the following sticker on computer incorporating this product.

The frequency bandwidth of this equipment may operate within the same range as industrial devices, scientific devices, medical devices, microwave ovens, licensed radio stations and non-licensed specified low-power radio stations for mobile object identification systems (RFID) used in factory production lines (Other Radio Stations).

1. Before using this equipment, ensure that it does not interfere with any of the equipment listed above.
2. If this equipment causes RF interference to other radio stations, promptly change the frequency being used, change the location of use, or turn off the source of emissions.
3. Contact TOSHIBA Direct PC if you have problems with interference caused by this product to Other Radio Stations.

### 2. Indication

The indication shown below appears on this equipment.



- (1) 2.4 : This equipment uses a frequency of 2.4 GHz.
- (2) FH : This equipment uses FH-SS modulation.
- (3) 1: The interference range of this equipment is less than 10 m.
- (4) 2,400 - 2,483.5 MHz This equipment uses a frequency bandwidth from 2,400 MHz to 2,483.5 MHz.

It is impossible to avoid the band of mobile object identification systems.

### 3. TOSHIBA Direct PC

Monday - Friday : 10:00-17:00  
 Toll Free Tel : 0120-15-1048  
 Direct Dial : 03-3457-4850  
 FAX : 03-3457-4868

## Device Authorization

This device obtains the Technical Conditions Compliance Approval, and it belongs to the device class of radio equipment of low-power data communication system radio station stipulated in the Telecommunications Business Law.

The Name of the radio equipment: EYXF3CS

JAPAN APPROVALS INSTITUTE FOR TELECOMMUNICATIONS  
EQUIPMENT

Approval Number: D05-0074001

The following restrictions apply:

Do not disassemble or modify the device.

Do not install the embedded wireless module into other device.



# Appendix I

## AC Power Cord and Connectors

The power cord's AC input plug must be compatible with the various international AC power outlets and the cord must meet the standards for the country/region in which it is used. All cords must meet the following specifications:

<b>Length:</b>	Minimum 1.7 meters
<b>Wire size:</b>	Minimum 0.75 mm <sup>2</sup>
<b>Current rating:</b>	Minimum 2.5 amperes
<b>Voltage rating:</b>	125 or 250 VAC (depending on country/region's power standards)

## Certification agencies

<b>U.S. and Canada:</b>	UL listed and CSA certified No. 18 AWG, Type SVT or SPT-2		
<b>Australia:</b>	AS		
<b>Japan:</b>	DENANHO		
<b><i>Europe:</i></b>			
<b>Austria:</b>	OVE	<b>Italy:</b>	IMQ
<b>Belgium:</b>	CEBEC	<b>The Netherlands:</b>	KEMA
<b>Denmark:</b>	DEMKO	<b>Norway:</b>	NEMKO

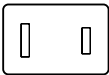
<b>Finland:</b>	FIMKO	<b>Sweden:</b>	SEMKO
<b>France:</b>	LCIE	<b>Switzerland:</b>	SEV
<b>Germany:</b>	VDE	<b>United Kingdom:</b>	BSI

In Europe, two conductors power cord must be VDE type, H05VVH2-F or H03VVH2-F and for three conductors power cord must be VDE type, H05VV-F.

For the United States and Canada, two pin plug configuration must be a 2-15P (250V) or 1-15P (125V) and three pin plug configuration must be 6-15P (250V) or 5-15P (125V) as designated in the U.S. National Electrical code handbook and the Canadian Electrical Code Part II.

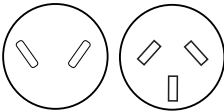
The following illustrations show the plug shapes for the U.S.A. and Canada, the United Kingdom, Australia and Europe.

**USA**



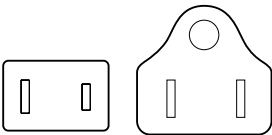
UL approved

**Australia**



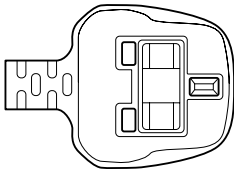
AS approved

**Canada**



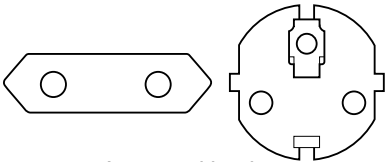
CSA approved

**United Kingdom**



BS approved

**Europe**



Approved by the appropriate agency

## Appendix J

### TOSHIBA Anti-theft Protection Timer

This feature allows you to set up a timer-activated BIOS password that will prevent unauthorised system access in the event of theft.

When the time limit is exceeded, you are required to provide the Password or fingerprint authentication for the BIOS and Hard Disk Drive to gain access to the system.

To set permissions and limits for the TOSHIBA Anti-theft Protection Timer please use the TOSHIBA Password Utility.

The settings can only be activated or modified by a user with supervisor authority. If the supervisor password is not set, click on the **Set** button in **Supervisor Password** from the supervisor tab in TOSHIBA Password Utility and set the password on the dialog screen that appears.

Then, click on the **Set** button in TOSHIBA Anti-theft Protection Timer.

Take the following action if the set limit is exceeded.

- If the Supervisor Password is registered but the User Password is not, enter the Supervisor Password to boot up the computer.
- If both the Supervisor Password and the User Password are registered, enter either the Supervisor Password, the User Password or the fingerprint authentication to boot up the computer.



- *The limit counts the number of days from the last time Windows is logged on till the next time the computer is booted up. The range can be set from 1 to 28 days.*
- *Authentication is required if the computer's clock is significantly modified.*
- *If the Supervisor Password is deleted, this function becomes disabled.*

## Appendix K

### Legal Footnotes

This chapter states the Legal Footnotes information applicable to TOSHIBA computers. In the text in this manual, \*XX is used to show which Legal Footnotes description is related to TOSHIBA computers.

Description(s) related to this computer are marked with a blue \*XX in this manual. Clicking on \*XX will display the related description.

#### Non-applicable Icons\*1

Certain computer chassis are designed to accommodate all possible configurations for an entire product series. Therefore, please be aware that your selected model may not have all the features and specifications corresponding to all of the icons or switches shown on the computer chassis.

#### CPU\*2

Central Processing Unit ("CPU") Performance Legal Footnotes.

CPU performance in your computer product may vary from specifications under the following conditions:

- use of certain external peripheral products
- use of battery power instead of AC power
- use of certain multimedia, computer generated graphics or video applications
- use of standard telephone lines or low speed network connections
- use of complex modeling software, such as high end computer aided design applications
- use of several applications or functionalities simultaneously
- use of computer in areas with low air pressure (high altitude >1,000 meters or >3,280 feet above sea level)

- use of computer at temperatures outside the range of 5°C to 30°C (41°F to 86°F) or >25°C (77°F) at high altitude (all temperature references are approximate and may vary depending on the specific computer model - please refer to your computer documentation or visit the Toshiba website at [www.pcsupport.toshiba.com](http://www.pcsupport.toshiba.com) for details).

CPU performance may also vary from specifications due to design configuration.

Under some conditions, your computer product may automatically shut-down. This is a normal protective feature designed to reduce the risk of lost data or damage to the product when used outside recommended conditions. To avoid risk of lost data, always make back-up copies of data by periodically storing it on an external storage medium. For optimum performance, use your computer product only under recommended conditions. Read additional restrictions in your product documentation. Contact Toshiba technical service and support, refer to [TOSHIBA support](#) section in Chapter 8 Troubleshooting for more information.

## 64-Bit Computing

The following section applies only to Intel® Core™ 2 Duo Processor equipped models.

64-bit processors are designed to take advantage of 32 and 64 bit computing.

64-bit computing requires that the following hardware and software requirements are met:

- 64-bit Operating System
- 64-bit CPU, Chipset and BIOS (Basic Input/Output System)
- 64-bit Device drivers
- 64-bit applications

Certain device drivers and/or applications may not be compatible with a 64-bit CPU and therefore may not function properly. A 32-bit version of the operating system is preinstalled on your computer unless explicitly stated that the operating system is 64-bit.

## Memory (Main System)\*3

Part of the main system memory may be used by the graphics system for graphics performance and therefore reduce the amount of main system memory available for other computing activities. The amount of main system memory allocated to support graphics may vary depending on the graphics system, applications utilized, system memory size and other factors. For computer's configured with 4 GB of system memory, the full system memory space for computing activities will be considerably less and will vary by model and system configuration.

## Battery Life\*4

Battery life may vary considerably depending on product model, configuration, applications, power management settings and features utilized, as well as the natural performance variations produced by the design of individual components. Published battery life numbers are achieved on select models and configurations tested by Toshiba at the time of publication. Recharge time varies depending on usage. Battery may not charge while computer is consuming full power.

After going through many charge and discharge cycles, the battery will lose its ability to perform at maximum capacity and will need to be replaced. This is a normal phenomenon for all batteries. To purchase a new battery pack, see the accessories information that is shipped with your computer.

## Hard Disk Drive (HDD) Capacity\*5

1 Gigabyte (GB) means  $10^9 = 1,000,000,000$  bytes using powers of 10. The computer operating system, however, reports storage capacity using powers of 2 for the definition of  $1 \text{ GB} = 2^{30} = 1,073,741,824$  bytes, and therefore shows less storage capacity. Available storage capacity will also be less if the product includes one or more pre-installed operating systems, such as Microsoft Windows and/or pre-installed software applications, or media content. Actual formatted capacity may vary.

## LCD\*6

Over a period of time, and depending on the usage of the computer, the brightness of the LCD screen will deteriorate. This is an intrinsic characteristic of LCD technology.

Maximum brightness is only available when operating in AC power mode. The screen will dim when the computer is operated on battery power and you may not be able to increase the brightness of the screen.

## Graphics Processor Unit ("GPU")\*7

Graphics processor unit ("GPU") performance may vary depending on product model, design configuration, applications, power management settings and features utilized. GPU performance is only optimized when operating in AC power mode and may decrease considerably when operating in battery power mode.

## Wireless LAN\*8

The transmission speed over the wireless LAN and the distance over which wireless LAN can reach may vary depending on surrounding electromagnetic environment, obstacles, access point design and configuration, and client design and software/hardware configurations.

The actual transmission speed will be lower than the theoretical maximum speed.

The Intel® Next-Gen Wireless-N adaptor is based on a draft release version of the IEEE 802.11n specification, also known as "Draft-N", which may not be compatible with, or support all features (e.g., security) of, certain Wi-Fi equipment.

## Copy Protection\*9

Applicable copy protection standards included in certain media may prevent or limit recording or viewing of the media.

## Images\*10

All images are simulated for purposes of illustration.

## Glossary

The terms in this glossary cover topics related to this manual. Alternate naming is included for reference.

### ***Abbreviations***

**AC:** alternating current

**AGP:** accelerated graphics port

**ANSI:** American National Standards Institute

**APM:** advanced power manager

**ASCII:** American Standard Code for Information Interchange

**BIOS:** basic input output system

**CD-ROM:** Compact Disc-Read Only Memory

**CD-RW:** Compact Disc-ReWritable

**CMOS:** complementary metal-oxide semiconductor

**CPU:** central processing unit

**CRT:** cathode ray tube

**DC:** direct current

**DDC:** display data channel

**DMA:** direct memory access

**DOS:** disk operating system

**DVD:** digital versatile disc

**DVD-R:** Digital Versatile Disc-Recordable

**DVD-RAM:** Digital Versatile Disc-Random Access Memory

**DVD-R (Dual Layer):** Digital Versatile Disc Recordable Dual Layer

**DVD-ROM:** Digital Versatile Disc-Read Only Memory

**DVD-RW:** Digital Versatile Disc-ReWritable

**DVD+R (Double Layer):** Digital Versatile Disc Recordable Double Layer

**ECP:** extended capabilities port

**FDD:** floppy diskette drive

**FIR:** fast infrared

**HDD:** hard disk drive

**IDE:** integrated drive electronics

**I/O:** input/output

**IRQ:** interrupt request



**KB:** kilobyte  
**LCD:** liquid crystal display  
**LED:** light emitting diode  
**LSI:** large scale integration  
**MB:** megabyte  
**MS-DOS:** Microsoft Disk Operating System  
**OCR:** optical character recognition (reader)  
**PCB:** printed circuit board  
**PCI:** peripheral component interconnect  
**RAM:** random access memory  
**RGB:** red, green, and blue  
**ROM:** read only memory  
**RTC:** real time clock  
**SCSI:** small computer system interface  
**SIO:** serial input/output  
**TFT:** thin-film transistor  
**UART:** universal asynchronous receiver/transmitter  
**USB:** Universal Serial Bus  
**UXGA:** ultra extended graphics array  
**VGA:** video graphics array  
**VRT:** voltage reduction technology  
**WXGA:** wide extended graphics array  
**WXGA+:** wide extended graphics array plus  
**XGA:** extended graphics array

## A

**AccuPoint:** A pointing device integrated into the TOSHIBA computer keyboard.

**adaptor:** A device that provides an interface between two dissimilar electronic devices. For example, the AC adaptor modifies the power from a wall outlet for use by the computer. This term also refers to the add-in circuit cards that control external devices, such as video monitors and magnetic tape devices.

**allocate:** To assign a space or function for a specific task.

**alphanumeric:** Keyboard characters including letters, numbers and other symbols, such as punctuation marks or mathematical symbols.

**alternating current (AC):** Electric current that reverses its direction of flow at regular intervals.

**analog signal:** A signal whose characteristics such as amplitude and frequency vary in proportion to (are an analog of) the value to be transmitted. Voice communications are analog signals.

**ANSI:** American National Standards Institute. An organization established to adopt and define standards for a variety of technical disciplines. For example, ANSI defined the ASCII standard and other information processing requirements.

**antistatic:** A material used to prevent the buildup of static electricity.

**application:** A group of programs that together are used for a specific task such as accounting, financial planning, spreadsheets, word processing and games.

**ASCII:** American Standard Code for Information Interchange. ASCII code is a set of 256 binary codes that represent the most commonly used letters, numbers, and symbols.

**async:** Short for asynchronous.

**asynchronous:** Lacking regular time relationship. As applied to computer communications, asynchronous refers to the method of transmitting data that does not require a steady stream of bits to be transmitted at regular time intervals.

## B

**backup:** A duplicate copy of files kept as a spare in case the original is destroyed.

**batch file:** A file that can be executed from the system prompt containing a sequence of operating system commands or executable files.

**binary:** The base two number system composed of zeros and ones (off or on), used by most digital computers. The right-most digit of a binary number has a value of 1, the next a value of 2, then 4, 8, 16, and so on. For example, the binary number 101 has a value of 5. *See also* ASCII.

**BIOS:** Basic Input Output System. The firmware that controls data flow within the computer. *See also* firmware.

**bit:** Derived from "binary digit," the basic unit of information used by the computer. It is either zero or one. Eight bits is one byte. *See also* byte.

**board:** A circuit board. An internal card containing electronic components, called chips, which perform a specific function or increase the capabilities of the system.

**boot:** Short for bootstrap. A program that starts or restarts the computer. The program reads instructions from a storage device into the computer's memory.

**bps:** Bits per second. Typically used to describe the data transmission speed of a modem.

**buffer:** The portion of the computer's memory where data is temporarily stored. Buffers often compensate for differences in the rate of flow from one device to another.

**bus:** An interface for transmission of signals, data or electric power.

**byte:** The representation of a single character. A sequence of eight bits treated as a single unit; also the smallest addressable unit within the system.

## C

**cache memory:** High speed memory which stores data that increases processor speed and data transfer rate. When the CPU reads data from main memory, it stores a copy of this data in cache memory. The next time the CPU needs that same data, it looks for it in the cache memory rather than the main memory, which saves time. The computer has two cache levels. Level one is incorporated into the processor and level two resides in external memory.

**capacity:** The amount of data that can be stored on a magnetic storage device such as a floppy diskette or hard disk drive. It is usually described in terms of kilobytes (KB), where one KB = 1024 bytes, megabytes (MB), where one MB = 1024 KB and gigabytes (GB), where one GB = 1024 MB.

**card:** Synonym for board. See board.

**CardBus:** An industry standard bus for 32-bit PC Cards.

**CD-ROM:** A Compact Disc-Read Only Memory is a high capacity disc that can be read from but not written to. The CD-ROM drive uses a laser, rather than magnetic heads, to read data from the disc.

**CD-R:** A Compact Disc-Recordable disc can be written once and read many times. See also CD-ROM.

**CD-RW:** A Compact Disc-ReWritable disc can be rewritten many times. See also CD-ROM.

**character:** Any letter, number, punctuation mark, or symbol used by the computer. Also synonymous with byte.

**chassis:** The frame containing the computer.

**chip:** A small semiconductor containing computer logic and circuitry for processing, memory, input/output functions and controlling other chips.

**CMOS:** Complementary Metal-Oxide Semiconductor. An electronic circuit fabricated on a silicon wafer that requires very little power. Integrated circuits implemented in CMOS technology can be tightly packaged and are highly reliable.

**cold start:** Starting a computer that is currently off (turning on the power).

**COM1, COM2, COM3 and COM4:** The names assigned to the serial and communication ports.

**commands:** Instructions you enter at the terminal keyboard that direct the actions of the computer or its peripheral devices.

**communications:** The means by which a computer transmits and receives data to and from another computer or device. See parallel interface; serial interface.

**compatibility:** 1) The ability of one computer to accept and process data in the same manner as another computer without modifying the data or the media upon which it is being transferred.  
2) the ability of one device to connect to or communicate with another system or component.

**components:** Elements or parts (of a system) which make up the whole (system).

**computer program:** A set of instructions written for a computer that enable it to achieve a desired result.

**computer system:** A combination of hardware, software, firmware, and peripheral components assembled to process data into useful information.

**configuration:** The specific components in your system (such as the terminal, printer, and disk drives) and the settings that define how your system works. You use the HW Setup program to control your system configuration.

**control keys:** A key or sequence of keys you enter from the keyboard to initiate a particular function within a program.

**controller:** Built-in hardware and software that controls the functions of a specific internal or peripheral device (e.g. keyboard controller).

**co-processor:** A circuit built into the processor that is dedicated to intensive math calculations.

**CPS:** Characters Per Second. Typically used to indicate the transmission speed of a printer.

**CPU:** Central Processing Unit. The portion of the computer that interprets and executes instructions.

**CRT:** Cathode Ray Tube. A vacuum tube in which beams projected on a fluorescent screen-producing luminous spots. An example is the television set.

**cursor:** A small, blinking rectangle or line that indicates the current position on the display screen.

## D

**data:** Information that is factual, measurable or statistical that a computer can process, store, or retrieve.

**data bits:** A data communications parameter controlling the number of bits (binary digits) used to make up a byte. If data bits = 7 the computer can generate 128 unique characters. If data bits = 8 the computer can generate 256 unique characters.

**DC:** Direct Current. Electric current that flows in one direction. This type of power is usually supplied by batteries.

**default:** The parameter value automatically selected by the system when you or the program do not provide instructions. Also called a preset value.

- delete:** To remove data from a disk or other data storage device.  
Synonymous with erase.
- device driver:** A program that controls communication between a specific peripheral device and the computer. The CONFIG.SYS file contains device drivers that MS-DOS loads when you turn the computer on.
- diallog box:** A window that accepts user input to make system settings or record other information.
- disk drive:** The device that randomly accesses information on a disk and copies it to the computer's memory. It also writes data from memory to the disk. To accomplish these tasks, the unit physically rotates the disk at high speed past a read-write head.
- disk storage:** Storing data on magnetic disk. Data is arranged on concentric tracks much like a phonograph record.
- display:** A CRT, LCD, or other image producing device used to view computer output.
- documentation:** The set of manuals and/or other instructions written for the users of a computer system or application. Computer system documentation typically includes procedural and tutorial information as well as system functions.
- DOS:** Disk Operating System. See operating system.
- driver:** A software program, generally part of the operating system, that controls a specific piece of hardware (frequently a peripheral device such as a printer or mouse).
- DVD-R (+R, -R):** A Digital Versatile Disc-Recordable disk can be written once and read many times. The DVD-R drive uses a laser to read data from the disc.
- DVD-RAM:** A Digital Versatile Disc-Random Access Memory is a high-capacity, high performance disc that lets you store large volumes of data. The DVD-ROM drive uses a laser to read data from the disc.
- DVD-R (Dual Layer):** A disc having two layers on one side with the DVD-R storage capacity about 1.8 times larger than before. The DVD-RW drive uses a laser to read data from the disc.
- DVD-ROM:** A Digital Versatile Disc-Read Only Memory is a high capacity, high performance disc suitable for play back of video and other high-density files. The DVD-ROM drive uses a laser to read data from the disc.
- DVD-RW (+RW, -RW):** A Digital Versatile Disc-ReWritable disc can be rewritten many times.
- DVD+R (Double Layer):** A disc having two layers on one side with the DVD+R storage capacity about 1.8 times larger than before. The DVD-RW drive uses a laser to read data from the disc.

## E

**echo:** To send back a reflection of the transmitted data to the sending device. You can display the information on the screen, or output it to the printer, or both. When a computer receives back data it transmitted to a CRT (or other peripheral device) and then retransmits the data to printer, the printer is said to echo the CRT.

**erase:** See delete.

**escape:** 1) A code (ASCII code 27), signaling the computer that what follows are commands; used with peripheral devices such as printers and modems.

2) A means of aborting the task currently in progress.

**escape guard time:** A time before and after an escape code is sent to the modem which distinguishes between escapes that are part of the transmitted data, and escapes that are intended as a command to the modem.

**execute:** To interpret and execute an instruction.

**Extended Capability Port:** An industry standard that provides a data buffer, switchable forward and reverse data transmission, and run length encoding (RLE) support.

## F

**fast infrared:** An industry standard that enables cableless infrared serial data transfer at speeds of up to 4 Mbps.

**file:** A collection of related information; a file can contain data, programs, or both.

**fingerprint sensor:** The fingerprint sensor compares and analyzes the unique characteristics in a fingerprint.

**firmware:** A set of instructions built into the hardware which controls and directs a microprocessor's activities.

**floppy diskette:** A removable disk that stores magnetically encoded data.

**floppy diskette drive (FDD):** An electromechanical device that reads and writes to floppy diskettes.

**Fn-esse:** A TOSHIBA utility that lets you assign functions to hot keys.

**folder:** An icon in Windows used to store documents or other folders.

**format:** The process of readying a blank disk for its first use. Formatting establishes the structure of the disk that the operating system expects before it writes files or programs onto the disk.

**function keys:** The keys labeled **F1** through **F12** that tell the computer to perform certain functions.

## G

**gigabyte (GB):** A unit of data storage equal to 1024 megabytes. *See also* megabyte.

**graphics:** Drawings, pictures, or other images, such as charts or graphs, to present information.

## H

**hard disk:** A non-removable disk usually referred to as drive C. The factory installs this disk and only a trained engineer can remove it for servicing. Also called fixed disk.

**hard disk drive (HDD):** An electromechanical device that reads and writes a hard disk. *See also* hard disk.

**hardware:** The physical electronic and mechanical components of a computer system: typically, the computer itself, external disk drives, etc. *See also* software and firmware.

**hertz:** A unit of wave frequency that equals one cycle per second.

**hexadecimal:** The base 16 numbering system composed of the digits 0 through 9 and the letters A, B, C, D, E, and F.

**host computer:** The computer that controls, regulates, and transmits information to a device or another computer.

**hot key:** The computer's feature in which certain keys in combination with the extended function key, **FN**, can be used to set system parameters, such as speaker volume.

**HW Setup:** A TOSHIBA utility that lets you set the parameters for various hardware components.

## I

**icon:** A small graphic image displayed on the screen or in the indicator panel. In Windows, an icon represents an object that the user can manipulate.

**i.LINK (IEEE1394):** This port enables high-speed data transfer directly from external devices such as digital video cameras.

**input:** The data or instructions you provide to a computer, communication device or other peripheral device from the keyboard or external or internal storage devices. The data sent (or output) by the sending computer is input for the receiving computer.

**instruction:** Statements or commands that specify how to perform a particular task.

**interface:** 1) Hardware and/or software components of a system used specifically to connect one system or device to another.  
2) To physically connect one system or device to another to exchange information.  
3) The point of contact between user, the computer, and the program, for example, the keyboard or a menu.

**interrupt request:** A signal that gives a component access to the processor.

**I/O:** Input/output. Refers to acceptance and transfer of data to and from a computer.

**I/O devices:** Equipment used to communicate with the computer and transfer data to and from it.

## J

**jumper:** A small clip or wire that allows you to change the hardware characteristics by electrically connecting two points of a circuit.

## K

**K:** Taken from the Greek word kilo, meaning 1000; often used as equivalent to 1024, or 2 raised to the 10th power. *See also* byte and kilobyte.

**KB:** *See* kilobyte.

**keyboard:** An input device containing switches that are activated by manually pressing marked keys. Each keystroke activates a switch that transmits a specific code to the computer. For each key, the transmitted code is, in turn, representative of the (ASCII) character marked on the key.

**kilobyte (KB):** A unit of data storage equal to 1024 bytes. *See also* byte and megabyte.

## L

**level 2 cache:** *See* cache.

**Light Emitting Diode (LED):** A semiconductor device that emits light when a current is applied.

**Liquid Crystal Display (LCD):** Liquid crystal sealed between two sheets of glass coated with transparent conducting material. The viewing-side coating is etched into character forming segments with leads that extend to the edge of the glass. Applying a voltage between the glass sheets alters the brightness of the liquid crystal.

**LSI:** Large Scale Integration.

- 1) A technology that allows the inclusion of up to 100,000 simple logic gates on a single chip.
- 2) An integrated circuit that uses large scale integration.

## M

**main board:** *See* motherboard.

**megabyte (MB):** A unit of data storage equal to 1024 kilobytes. *See also* kilobyte.

**megahertz:** A unit of wave frequency that equals 1 million cycles per second. *See also* hertz.

**menu:** A software interface that displays a list of options on the screen. Also called a screen.



**microprocessor:** A hardware component contained in a single integrated circuit that carries out instructions. Also called the central processing unit (CPU), one of the main parts of the computer.

**mode:** A method of operation, for example, the Boot Mode, Sleep Mode or the Hibernation Mode.

**monitor:** A device that uses rows and columns of pixels to display alphanumeric characters or graphic images. *See also* CRT.

**motherboard:** A name sometimes used to refer to the main printed circuit board in processing equipment. It usually contains integrated circuits that perform the processor's basic functions and provides connectors for adding other boards that perform special functions. Sometimes called a main board.

**MP3:** An audio compression standard that enables high-quality transmission and real-time playback of sound files.

## N

**non-system disk:** A formatted floppy diskette you can use to store programs and data but you cannot use to start the computer. *See* system disk.

**nonvolatile memory:** Memory, usually read-only (ROM), that is capable of permanently storing information. Turning the computer's power off does not alter data stored in nonvolatile memory.

**numeric keypad overlay:** A feature that allows you to use certain keys on the keyboard to perform numeric entry, or to control cursor and page movement.

## O

**OCR:** Optical Character Recognition (reader). A technique or device that uses laser or visible light to identify characters and input them into a storage device.

**online state:** A functional state of a peripheral device when it is ready to receive or transmit data.

**operating system:** A group of programs that controls the basic operation of a computer. Operating system functions include interpreting programs, creating data files, and controlling the transmission and receipt (input/output) of data to and from memory and peripheral devices.

**output:** The results of a computer operation. Output commonly indicates data.  
1) printed on paper, 2) displayed at a terminal, 3) sent through the serial port of internal modem, or 4) stored on some magnetic media.

## P

- parity:** 1) The symmetrical relationship between two parameter values (integers) both of which are either on or off; odd or even; 0 or 1.  
2) In serial communications, an error detection bit that is added to a group of data bits making the sum of the bits even or odd. Parity can be set to none, odd, or even.
- password:** A unique string of characters used to identify a specific user. The computer provides various levels of password protection such as user, supervisor and eject.
- pel:** The smallest area of the display that can be addressed by software. Equal in size to a pixel or group of pixels. *See* pixel.
- peripheral component interconnect:** An industry standard 32-bit bus.
- peripheral device:** An I/O device that is external to the central processor and/or main memory such as a printer or a mouse.
- pixel:** A picture element. The smallest dot that can be made on a display or printer. Also called a pel.
- plug and play:** A capability with Windows that enables the system to automatically recognize connections of external devices and make the necessary configurations in the computer.
- port:** The electrical connection through which the computer sends and receives data to and from devices or other computers.
- Power Saver:** A TOSHIBA utility that lets you set the parameters for various power-saving functions.
- printed circuit board (PCB):** A hardware component of a processor to which integrated circuits and other components are attached. The board itself is typically flat and rectangular, and constructed of fiberglass, to form the attachment surface.
- program:** A set of instructions a computer can execute that enables it to achieve a desired result. *See also* application.
- prompt:** A message the computer provides indicating it is ready for or requires information or an action from you.

## R

- Radio frequency interference (RFI) shield:** A metal shield enclosing the printed circuit boards of the printer or computer to prevent radio and TV interference. All computer equipment generates radio frequency signals. The FCC regulates the amount of signals a computing device can allow past its shielding. A Class A device is sufficient for office use. Class B provides a more stringent classification for home equipment use. TOSHIBA portable computers comply with Class B computing device regulations.
- Random Access Memory (RAM):** High speed memory within the computer circuitry that can be read or written to.
- restart:** Resetting a computer without turning it off (also called "warm boot" or "soft reset"). *See also* boot.

**RGB:** Red, green, and blue. A device that uses three input signals, each activating an electron gun for a primary additive color (red, green, and blue) or port for using such a device. *See also* CRT.

**RJ45:** A modular LAN jack.

**ROM:** Read Only Memory: A nonvolatile memory chip manufactured to contain information that controls the computer's basic operation. You cannot access or change information stored in ROM.

## S

**SCSI:** Small Computer System Interface is an industry standard interface for connection of a variety of peripheral devices.

**SD/SDHC Card:** Secure Digital cards are flash memory widely used in a variety of digital devices such as digital cameras and Personal Digital Assistants.

**serial communications:** A communications technique that uses as few as two interconnecting wires to send bits one after another.

**serial interface:** Refers to a type of information exchange that transmits information sequentially, one bit at a time.

**SIO:** Serial Input/Output. The electronic methodology used in serial data transmission.

**soft key:** Key combinations that emulate keys on the IBM keyboard, change some configuration options, stop program execution, and access the numeric keypad overlay.

**software:** The set of programs, procedures and related documentation associated with a computer system. Specifically refers to computer programs that direct and control the computer system's activities. *See also* hardware.

**stop bit:** One or more bits of a byte that follow the transmitted character or group codes in asynchronous serial communications.

**subpixel:** Three elements, one red, one green and blue (RGB), that make up a pixel on the color LCD. The computer sets subpixels independently, each may emit a different degree of brightness. *See also* pixel.

**synchronous:** Having a constant time interval between successive bits, characters or events.

**system disk:** A disk that has been formatted with an operating system. For MS-DOS the operating system is contained in two hidden files and the COMMAND.COM file. You can boot a computer using a system disk. Also called an operating system disk.

## T

**terminal:** A typewriter-like keyboard and CRT display screen connected to the computer for data input/output.

**TFT display:** A liquid crystal display (LCD) made from an array of liquid crystal cells using active-matrix technology with thin film transistor (TFT) to drive each cell.

**Touch Pad:** A pointing device integrated into the TOSHIBA computer palm rest.

**TTL:** Transistor-transistor logic. A logic circuit design that uses switching transistors for gates and storage.

## U

**Universal Serial Bus:** This serial interface lets you communicate with several devices connected in a chain to a single port on the computer.

## V

**VGA:** Video Graphics Array is an industry standard video adaptor that lets you run any popular software.

**volatile memory:** Random access memory (RAM) that stores information as long as power is supplied to the computer.

## W

**warm start:** Restarting or resetting a computer without turning it off.

**window:** A portion of the screen that can display its own application, document or dialog box. Often used to mean a Microsoft Windows window.

**Wireless LAN:** Local Area Network (LAN) through wireless communication.

**write protection:** A method for protecting a floppy diskette from accidental erasure.

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